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1 IDEC

Selecting MICRO3/MICRO3C or OpenNet(FC3A),MicroSmart(FC4A/FC5A) as the Host I/F Driver allows the user to use the 1: N Communication and Pass-through function. Selecting Web Server Unit(FC3A/FC4A/FC5A) as the Host I/F Driver allows the user to use 1: N Communication.

Pass-through function (→ Chapter 5 Pass-Through Function)

1: N Communication function (→ Chapter 6 1: N Communication Function)

1.1 Connection Table

1.1.1 Compatible PLCs

Manufacturer	Series Name	System (CPU unit)	Link unit	WindO/I-NV2 Setting Name		
				Interface	Flow Control	Host I/F Driver
IDEC	FA-3S	PF3S-CP12 PF3S-CP13	PF3S-SIF2	RS-232C (Connection Diagram 1-1)	ER control	FA-3S (CP12/13)
			PF3S-SIF4	RS-485 (422)-2 (Connection Diagram 1-2)		
			PF2-CLA	RS-232C (Connection Diagram 1-3)		
		PF3S-CP11 PF3S-CP11T	PF2-CLA	RS-232C (Connection Diagram 1-3)	ER control	FA-3S (CP11/11T), FA2J
	FA-2J	PF2-CPU1				
	MICRO^3	FC2A-C10 -C16A -C24A	Not required (connects to CPU unit)	RS-485 (422)-2 (Connection Diagram 1-4)	ER control	MICRO3 /MICRO3C
	MICRO^{3}C	FC2A-C16A -C24A	Not required (connects to CPU unit)	RS-232C (Connection Diagram 1-5)		
				RS-485 (422)-2 (Connection Diagram 1-6)		
	OpenNet Controller	FC3A-CP2	Not required (connects to CPU unit)	RS-232C (Connection Diagram 1-5)	ER control	OpenNet (FC3A), MicroSmart (FC4A/FC5A)
				RS-485 (422)-2 (Connection Diagram 1-6)		
			Web Server Unit (FC4A-SX5ES1E)	Ethernet	-	Web Server Unit(FC3A/FC 4A/FC5A)

* We tested with the PLC of underline part.

Manufacturer	Series Name	System (CPU unit)	Link unit	WindO/I-NV2 Setting Name		
				Interface	Flow Control	Host I/F Driver
IDEC	MICRO Smart	FC4A-C10R2	Not required (connects to CPU unit)	RS-232C (Connection Diagram 1-7)	ER control	OpenNet (FC3A), MicroSmart (FC4A/FC5A)
				RS-232C (Connection Diagram 1-5)	None	
			Web Server Unit (FC4A-SX5ES1E)	Ethernet	-	Web Server Unit(FC3A/FC4A/FC5A)
		FC4A-C16R2 -C24R2	Not required (connects to CPU unit)	RS-232C (Connection Diagram 1-7)	ER control	OpenNet (FC3A), MicroSmart (FC4A/FC5A)
				RS-232C (Connection Diagram 1-5)	None	
			FC4A-PC1	RS-232C (Connection Diagram 1-5)	ER control	
			FC4A-PC3	RS-485 (422)-2 (Connection Diagram 1-6)		
			Web Server Unit (FC4A-SX5ES1E)	Ethernet	-	Web Server Unit(FC3A/FC4A/FC5A)
		FC4A-D20K3 -D20S3 -D20RK1 -D20RS1 -D40K3 -D40S3	Not required (connects to CPU unit)	RS-232C (Connection Diagram 1-7)	ER control	OpenNet (FC3A), MicroSmart (FC4A/FC5A)
				RS-232C (Connection Diagram 1-5)	None	
			FC4A-HPC1	RS-232C (Connection Diagram 1-5)	ER control	
			FC4A-HPC3	RS-485 (422)-2 (Connection Diagram 1-6)		
			FC4A-HPH1 +FC4A-PC1	RS-232C (Connection Diagram 1-5)		
			FC4A-HPH1 +FC4A-PC3	RS-485 (422)-2 (Connection Diagram 1-6)		
			Web Server Unit (FC4A-SX5ES1E)	Ethernet	-	Web Server Unit(FC3A/FC4A/FC5A)

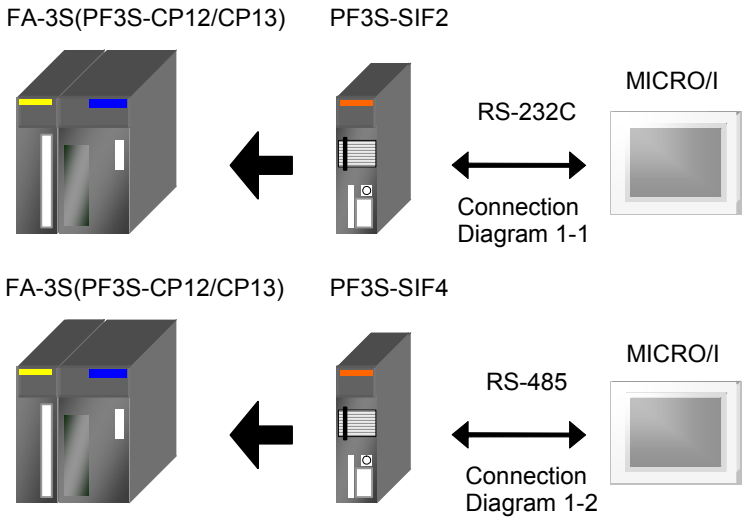
* We tested with the PLC of underline part.

Manufacturer	Series Name	System (CPU unit)	Link unit	WindO/I-NV2 Setting Name		
				Interface	Flow Control	Host I/F Driver
IDEC	MICRO Smart Pentra	FC5A-C10R2 FC5A-C16R2 FC5A-C24R2 FC5A-C10R2C FC5A-C16R2C FC5A-C24R2C	Not required (connects to CPU unit)	RS-232C (Connection Diagram 1-7)	ER control	OpenNet (FC3A), MicroSmart (FC4A/FC5A)
				RS-232C (Connection Diagram 1-5)	None	
			FC4A-PC1	RS-232C (Connection Diagram 1-5)	ER control	
			FC4A-PC3	RS-485(422)-2 (Connection Diagram 1-6)		
			FC5A-SIF2	RS-232C (Connection Diagram 1-8)	None	
			Web Server Unit (FC4A-SX5ES1E)	Ethernet	-	Web Server Unit(FC3A/FC4A/FC5A)
		FC5A-D16RK1 FC5A-D16RS1 FC5A-D32K3 FC5A-D32S3	Not required (connects to CPU unit)	RS-232C (Connection Diagram 1-7)	ER control	OpenNet (FC3A), MicroSmart (FC4A/FC5A)
				RS-232C (Connection Diagram 1-5)	None	
			FC4A-HPC1	RS-232C (Connection Diagram 1-5)	ER control	
			FC4A-HPC3	RS-485(422)-2 (Connection Diagram 1-6)		
			FC4A-HPH1 +FC4A-PC1	RS-232C (Connection Diagram 1-5)		
			FC4A-HPH1 +FC4A-PC3	RS-485(422)-2 (Connection Diagram 1-6)		
			FC5A-SIF2	RS-232C (Connection Diagram 1-8)	None	
			Web Server Unit (FC4A-SX5ES1E)	Ethernet	-	Web Server Unit(FC3A/FC4A/FC5A)

1.2 System Configuration

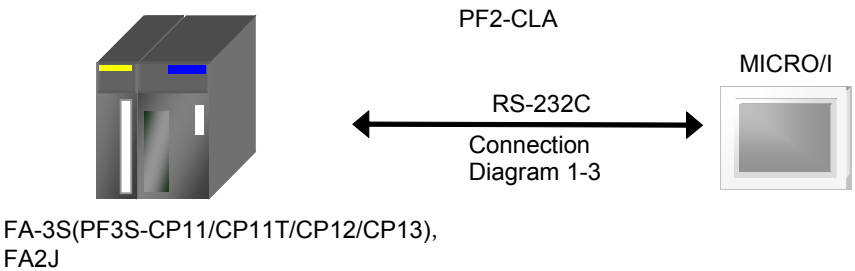
This is the system configuration for connection of IDEC PLCs to the MICRO/I.

1.2.1 FA Series (using the Serial Interface unit)



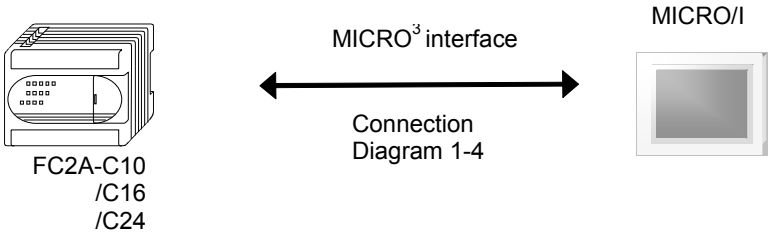
In case of HG2F/3F/4F a connection cable is available for Connection Diagram 1-1 (part number: PF3S-KS1).
In case of HG1F a connection cable is available for Connection Diagram 1-1 (part number: HG9Z-XC115).

1.2.2 FA Series (using the Link Adapter)



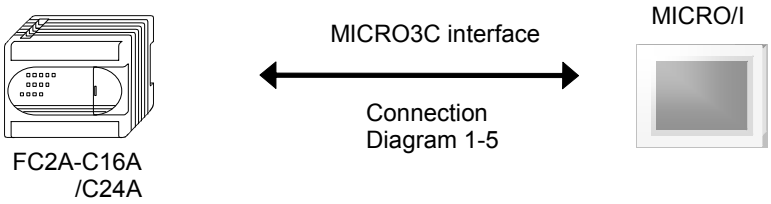
Use the special Link Cable (PFA-1A51) to connect the FA-3S and FA-2J to the PF2-CLA.

1.2.3 MICRO3 (connects to CPU Unit loader port)



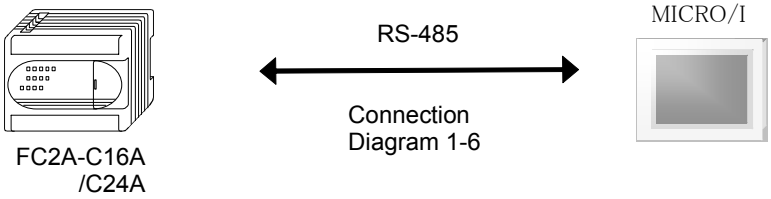
In case of HG2F/3F/4F a connection cable is available (part number: HG9Z-3C115).

1.2.4 MICRO3C (connects to CPU Unit loader port)

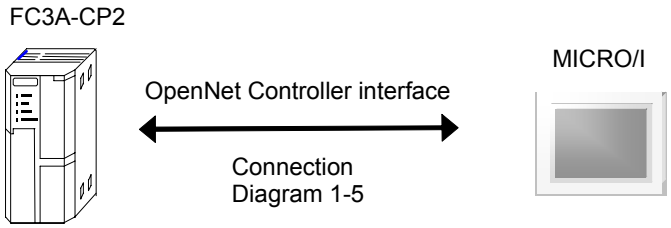


In case of HG2F/3F/4F a connection cable is available (part number: HG9Z-3C125).
In case of HG1F a connection cable is available (part number: HG9Z-XC183).

1.2.5 MICRO3C (connects from the CPU to the Data Link port)

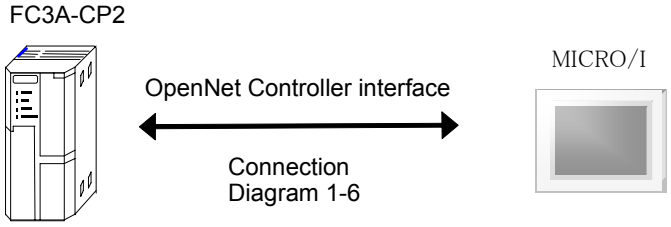


1.2.6 OpenNet Controller (connects to RS-232C port of the CPU unit)

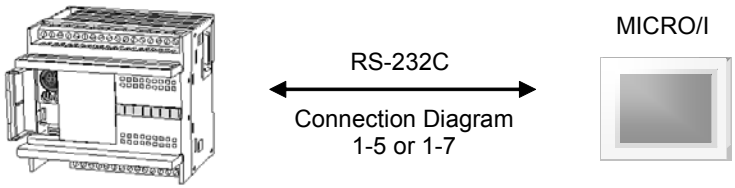


In case of HG2F/3F/4F a connection cable is available (part number: HG9Z-3C125).
In case of HG1F a connection cable is available (part number: HG9Z-XC183).

1.2.7 OpenNet Controller (connects to RS-485 port of the CPU unit)



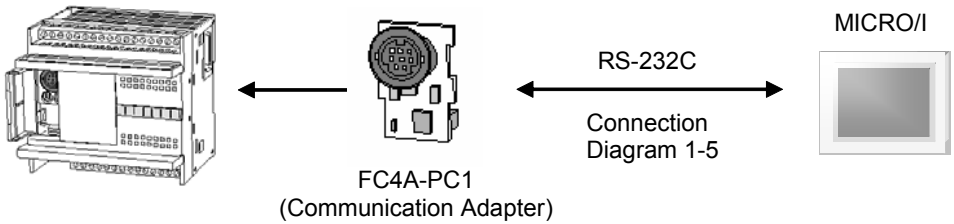
1.2.8 MicroSmart/MICROSmart Pentra (uses the communication port1)



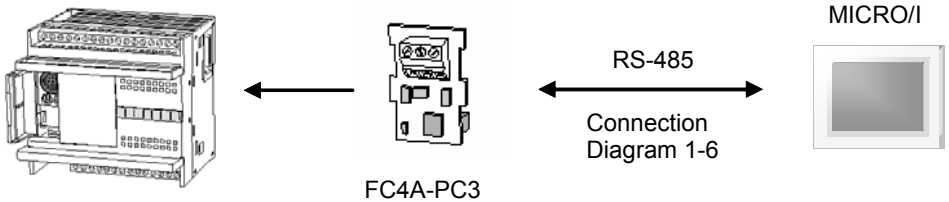
FC4A
FC5A

In case of HG2F/3F/4F a connection cable is available for Connection Diagram 1-5 (part number: HG9Z-3C125)
In case of HG1F a connection cable is available for Connection Diagram 1-5 (part number: HG9Z-XC183)
In case of HG2F/3F/4F a connection cable is available for Connection Diagram 1-7 (part number: FC4A-KC2C).
In case of HG1F a connection cable is available for Connection Diagram 1-7 (part number: FC4A-KC1C).

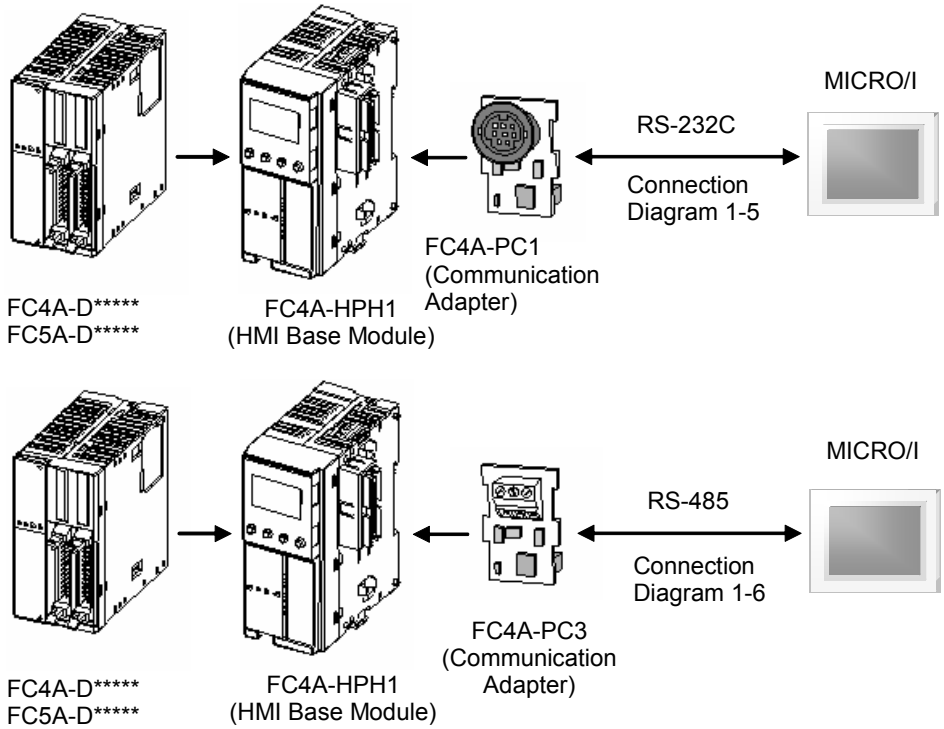
1.2.9 MicroSmart/MICROSmart Pentra (uses the communication port 2)



FC4A-C16R2 FC5A-C10R2
/-C24R2 /-C16R2
/-C24R2
/-C10R2C
/-C16R2C
/-C24R2C

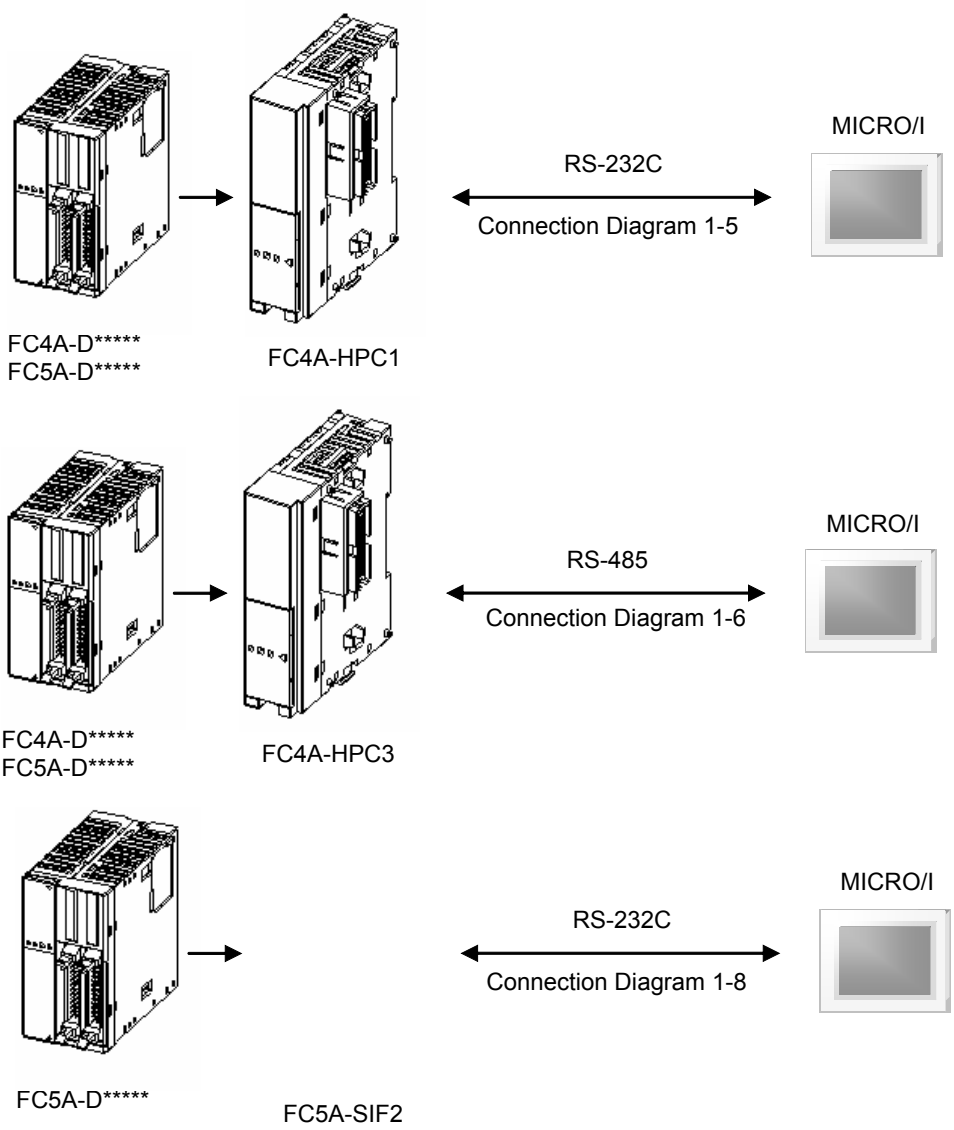


FC4A-C16R2 FC5A-C10R2
/-C24R2 /-C16R2
/-C24R2
/-C10R2C
/-C16R2C
/-C24R2C



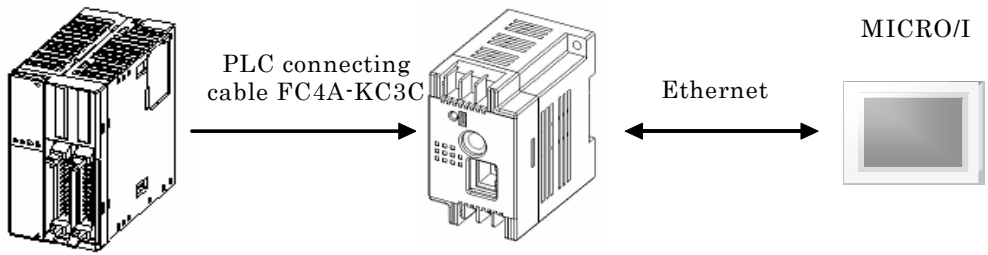
In case of HG2F/3F/4F a connection cable is available for Connection Diagram 1-5 (part number: HG9Z-3C125).
In case of HG1F a connection cable is available for Connection Diagram 1-5 (part number: HG9Z-XC183).

1.2.10 MicroSmart/MICROSmart Pentra (uses the Communication Module)



In case of HG2F/3F/4F a connection cable is available for Connection Diagram 1-5 (part number: HG9Z-3C125).
In case of HG1F a connection cable is available for Connection Diagram 1-5 (part number: HG9Z-XC183).

1.2.11 OpenNet Controller/MICROSmart/MICROSmart Pentra (uses Web Server Unit)



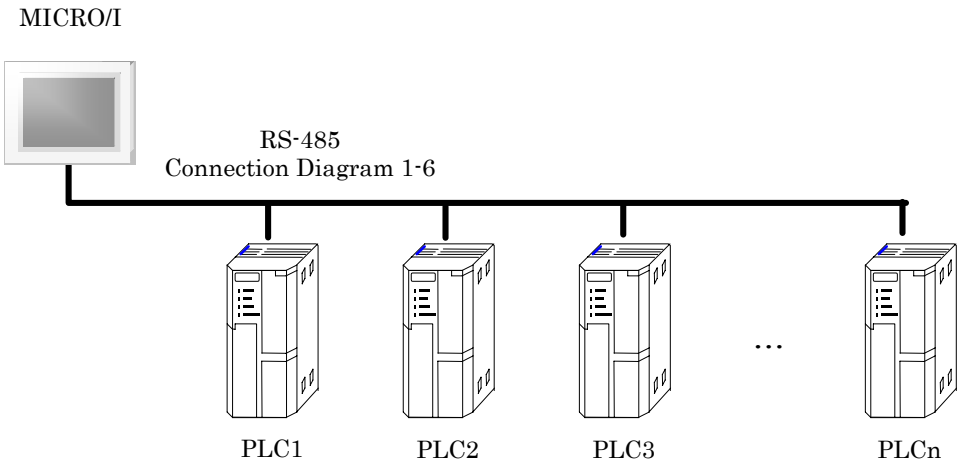
FC3A
FC4A
FC5A

Web Server Unit
FC4A-SX5ES1E

1.2.12 1: N Communication-OpenNet Controller/MICROSmart/MICROSmart Pentra

The 1: N communication can be established by using the following connections

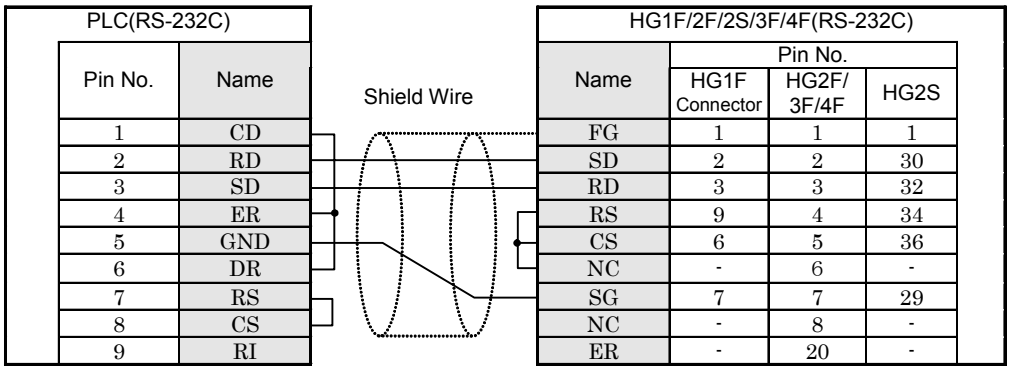
OpenNet Controller (Connects to the RS-485 port of the CPU unit)
MICRO Smart/MICROSmart Pentra (Port 2)- with RS-485 connection
MICRO Smart/MICROSmart Pentra (Communication module -to-RS-485)



1.3 Connection Diagram

The connector types given in the Connection Diagrams are for the unit and not the cable. For details regarding wiring, refer to "3 Important Points Regarding About Wiring" in Chapter 1.

Connection Diagram 1-1: FA-3S (PF3S-SIF2) to MICRO/I

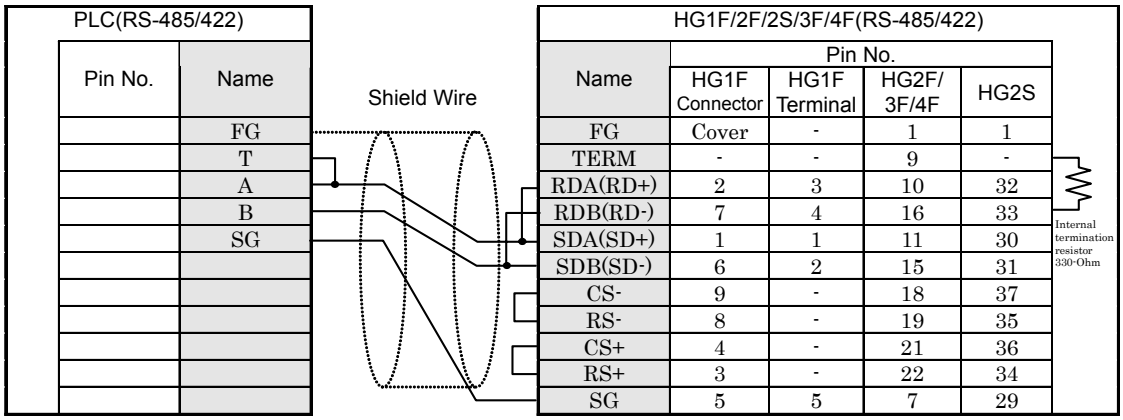


D-sub, 9P connector plug type (unit side)

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

In case of HG2F/3F/4F a connection cable is available (part number: PF3S-KS1).
In case of HG1F a connection cable is available (part number: XC115).

Connection Diagram 1-2: FA-3S (PF3S-SIF4) to MICRO/I



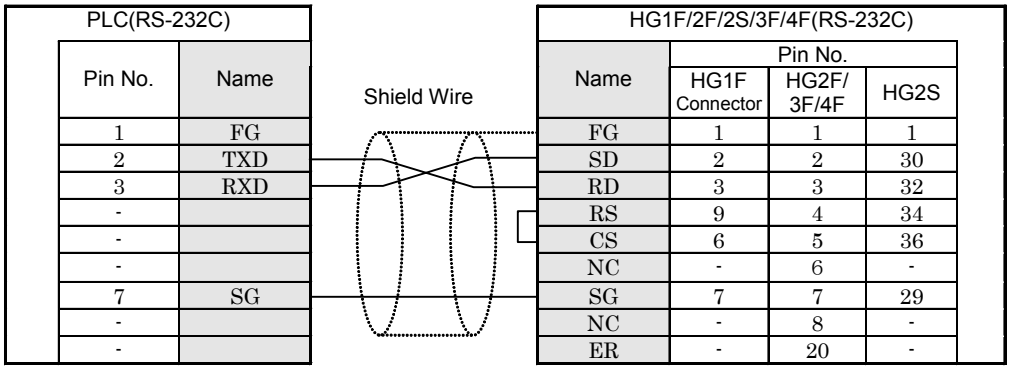
M3 screw terminal block 5P

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

- There is no pin No. corresponding to TERM on the HG1F/HG2S. When inserting a termination resistor, use a communication switch. For the setting of the switch, refer to "3 Important Points Regarding Wiring" in Chapter 1.

WARNING When you use the Terminal Block type of HG1F, make sure to configure the Hardware Flow control to NONE because the HG1F doesn't have control lines.

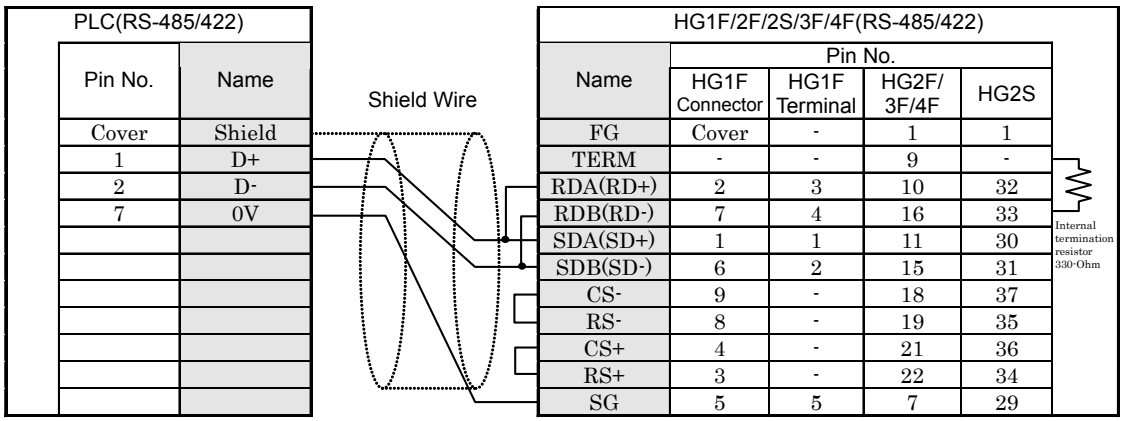
Connection Diagram 1-3: FA-3S, FA-2J (PF2-CLA) to MICRO/I



D-sub, 25P connector plug type
(unit side)

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

Connection Diagram 1-4: MICRO3 (loader port) to MICRO/I



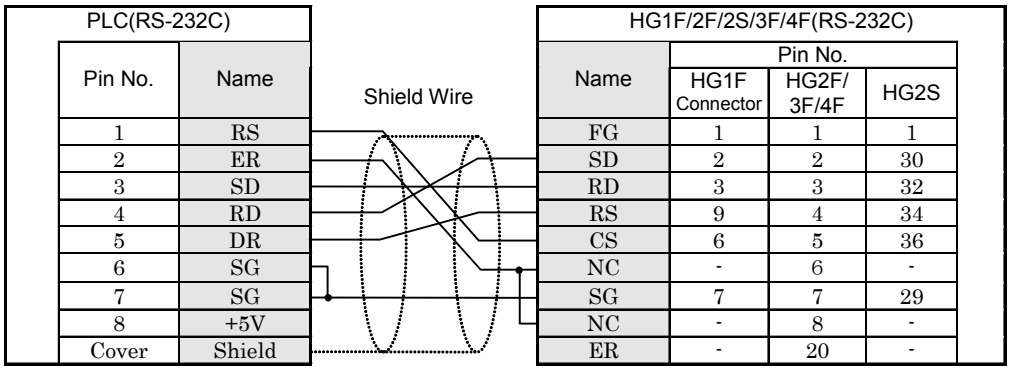
Mini DIN 8P

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

- In case of HG2F/3F/4F a connection cable is available (part number: HG9Z-3C115).
- There is no pin No. corresponding to TERM on the HG1F/HG2S. When inserting a termination resistor, use a communication switch. For the setting of the switch, refer to "3 Important Points Regarding Wiring" in Chapter 1.

WARNING When you use the Terminal Block type of HG1F, make sure to configure the Hardware Flow control to NONE because the HG1F doesn't have control lines.

Connection Diagram 1-5: MICRO3C (Loader port) to MICRO/I
OpenNet Controller (RS-232C port) to MICRO/I
MICROSmart/MICROSmart Pentra (RS-232C port) to MICRO/I



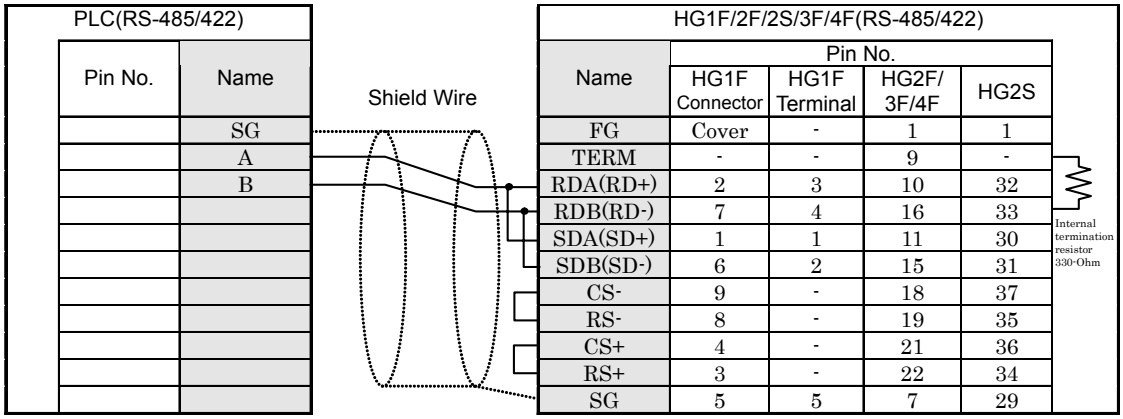
Mini DIN8P

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

In case of HG2F/3F/4Fa connection cable is available (part number: HG9Z-3C125).
The connection diagram 1-5 is not same as HG9Z-3C125. But both diagrams are available.
Refer to the Hardware Manual about the connection diagram of HG9Z-3C125.

In case of HG1F a connection cable is available (part number: HG9Z-XC183).
The connection diagram 1-5 is not same as HG9Z-XC183. But both diagrams are available.
Refer to the Hardware Manual about the connection diagram of HG9Z-XC183.

Connection Diagram 1-6: MICRO3C (Data Link port) to MICRO/I
OpenNet Controller (RS-485 port) to MICRO/I
MICROSmart/MICROSmart Pentra (RS-485 port) to MICRO/I



Screw terminal block

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

- There is no pin No. corresponding to TERM on the HG1F/HG2S. When inserting a termination resistor, use a communication switch. For the setting of the switch, refer to "3 Important Points Regarding Wiring" in Chapter 1.

WARNING When you use the Terminal Block type of HG1F, make sure to configure the Hardware Flow control to NONE because the HG1F doesn't have control lines.

Connection Diagram 1-7: MICROSmart/MICROSmart Pentra (RS-232C Port 1) to MICRO/I

PLC(RS-232C)	
Pin No.	Name
1	NC
2	NC
3	SD
4	RD
5	NC
6	SG
7	SG
8	NC
Cover	Shield

Mini DIN8P

Shield Wire

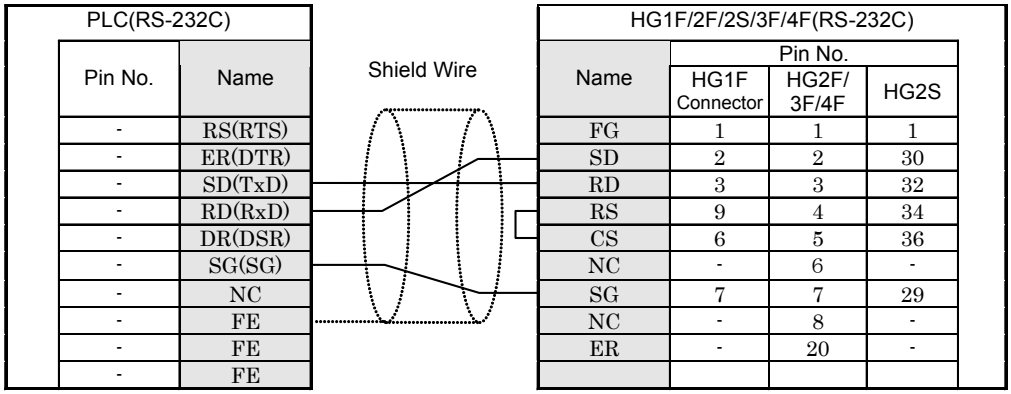
HG1F/2F/2S/3F/4F(RS-232C)			
Name	Pin No.		
	HG1F Connector	HG2F/ 3F/4F	HG2S
FG	1	1	1
SD	2	2	30
RD	3	3	32
RS	9	4	34
CS	6	5	36
NC	-	6	-
SG	7	7	29
NC	-	8	-
ER	-	20	-

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

In case of HG2F/3F/4Fa connection cable is available (part number: FC4A-KC2C).
The connection diagram 1-7 is not same as FC4A-KC2C. But both diagrams are available.
Refer to the Hardware Manual about the connection diagram of FC4A-KC2C.

In case of HG1F a connection cable is available (part number: FC4A-KC1C).
The connection diagram 1-7 is not same as FC4A-KC1C. But both diagrams are available.
Refer to the Hardware Manual about the connection diagram of FC4A-KC1C.

Connection Diagram 1-8: MICROSmart/MICROSmart Pentra (FC5A-SIF2) to MICRO/I



Terminal

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

1.4 Environment Settings

1.4.1 FA-3S Series (Serial Interface Unit)

Item		Setting
Communication Device Number	Set to the same setting as the MICRO/I.	0(DEC)
Data Bits		7 or 8 bits
Baud Rate (bps)		1200, 2400, 4800, 9600 or 19200
Parity		Even, Odd or None
Stop Bits		1 or 2 bits

Set the FA Series communication settings using the following switches.

1.4.1 1.PF3S-SIF2/SIF4 settings

Switch No.		Function						Setting		
								OFF		ON
SW1	1	Parity check						Even		Odd
	2	Parity check						Yes		No
	3	Stop Bits						1		2
	4	Data Bits						8		7
	Baud Rate (bps)		9600	4800	2400	1200	600	300	38400	19200
	5		OFF	ON	OFF	ON	OFF	ON	OFF	ON
	6		OFF	OFF	ON	ON	OFF	OFF	ON	ON
	7		OFF	OFF	OFF	OFF	ON	ON	ON	ON
	8	Unused						Either OK		
SW2		Communication mode						All off because used with standard communication mode.		
Module No.		Module number						From 1 to 7 with no duplication.		

The above settings are the same for both SIF2 and SIF4 except that the maximum communication for SIF2 is 19200 bps (38400 bps is not possible).

Make the settings for SIF2 and SIF4 so that the total number of bits calculated from Start Bit (1 bit) + Data Bits + Parity (1 bit if set) + Stop Bits comes to either 10 or 11 bits.

The time taken from power on to reaching the operational state for SIF2 and SIF4 is about one second when the memory bank capacity is 1k steps, and about four seconds when the memory bank capacity is 4k steps. Therefore, when the SIF2 or SIF4 will be powered up at the same time as the MICRO/I, set the Start Time for the MICRO/I to match the memory bank capacity (the default setting for Start Time is 0).

1.4.2 FA-3S and FA-2J (Ring Adapter)

Item	Setting
Baud Rate (bps)	9600
Data Bits (bits)	8
Parity	Even
Stop Bits	1
Device Number	0(DEC)

1.4.3 MICRO^3, MICRO^{3}C, OpenNet Controller and MICROSmart

Item	Setting
Baud Rate (bps)	9600
Data Bits (bits)	7
Parity	Even
Stop Bits	1
Device Number	0(DEC)

When connecting an OpenNet Controller to the MICRO/I, you must set the OpenNet Controller special Internal Relay M8014 to on.

1.4.4 OpenNet Controller,MICROSmart/MICROSmart Pentra (uses Web Server Unit)

Set following Items in Project Settings Dialog.

Item	Setting
IP Address (for HG)	Set the IP Address for MICRO/I. (Set the Item in Communication Interface tab.)
Subnet Mask	Set the Subnet Mask for MICRO/I. (Set the Item in Communication Interface tab.)
Default Gateway	Set the Default Gateway for MICRO/I. (Set the Item in Communication Interface tab.)
IP Address (Web Server Unit)	Set the IP Address for Web Server Unit. (Set the Item in Host I/F network tab.)
Port Number (Web Server Unit)	Set the Port Number for Web Server Unit. (Set the Item in Host I/F network tab.)

When connecting an OpenNet Controller to the MICRO/I, you must set the OpenNet Controller special Internal Relay M8014 to on.

1.5 Usable Devices

1.5.1 FA-3S (CP11, CP11T), FA2J

・ Bit Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Internal Relay(Bit)	M	M	0 - 297, 320 - 617	R/W	(*1)
Input(Bit)	I	I	0 - 157	R	(*1)
Output(Bit)	Q	Q	0 - 317	R/W	(*1)
Timer(Contact)	T	T	0 - 79	R	Dec
Counter(Contact)	C	C	0 - 46	R	Dec
Spec. Int. Relay(Bit)	SM	M	300 - 317	R	(*1)
Sift Register(Bit)	R	R	0 - 127	R/W	Dec

・ Word Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Data Register	D	D	0 - 399	R/W	Dec
Input(Word)	WI	I	0 - 140	R	Dec(*2)
Output(Word)	WQ	Q	0 - 300	R/W	Dec(*2)
Internal Relay(Word)	WM	M	0 – 280, 320 - 600	R/W	Dec(*2)
Timer(Current)	TN	T	0 - 79	R	Dec
Counter(Current)	CN	C	0 - 46	R	Dec
Timer(Preset)	TP	T	0 - 79	R/W	Dec
Counter(Preset)	CP	C	0 - 46	R/W	Dec
10-msec Timer(Current)	H	H	0 - 79	R	Dec
Spec. Int. Relay (Word)	WSM	M	300	R	Dec

*1 Set position 1 for this device in octal.

*2 Set this device using a multiplier of 20.

Usage limitations may exist for PLC devices depending on the operating conditions. Refer to the PLC manual to confirm performance under your actual operating conditions.

1.5.2 FA-3S (CP12, CP13)

・ Bit Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Internal Relay(Bit)	M	M	0 - 297, 320 - 617	R/W	(*1)
Input(Bit)	I	I	0 - 317	R	(*1)
Output(Bit)	Q	Q	0 - 317	R/W	(*1)
Timer(Contact)	T	T	0 - 255	R	Dec
Counter(Contact)	C	C	0 - 102	R	Dec
Spec. Int. Relay(Bit)	SM	M	300 - 317, 620 - 637	R	(*1)
Shift Register(Bit)	R	R	0 - 223	R/W	Dec

・ Word Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Data Register	D	D	0 - 2999	R/W	Dec
Input(Word)	WI	I	0 - 300	R	Dec(*2)
Output(Word)	WQ	Q	0 - 300	R/W	Dec(*2)
Internal Relay(Word)	WM	M	0 - 280, 320 - 600 640 - 1300	R/W	Dec(*2)
Timer(Current)	TN	T	0 - 255	R	Dec
Counter(Current)	CN	C	0 - 102	R	Dec
Timer(Preset)	TP	T	0 - 255	R/W	Dec
Counter(Preset)	CP	C	0 - 102	R/W	Dec
10-msec Timer(Current)	H	H	0 - 79	R	Dec
Control Register	CD	D	3000 - 3071	R	Dec
Spec. Int. Relay (Word)	WSM	M	300 - 620	R	Dec

*1 Set position 1 for this device in octal.

*2 Set this device using a multiplier of 20.

Usage limitations may exist for PLC devices depending on the operating conditions. Refer to the PLC manual to confirm performance under your actual operating conditions.

1.5.3 MICRO^3/MICRO^{3}C

- Bit Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Internal Relay(Bit)	M	M	0 - 287	R/W	(*1)
Input(Bit)	I	I	0 - 35	R	(*1)
Output(Bit)	Q	Q	0 - 31	R/W	(*1)
Timer(Contact)	T	T	0 - 31	R	Dec
Counter(Contact)	C	C	0 - 31	R	Dec
Spec. Int. Relay(Bit)	SM	M	290 - 317	R/W	(*1)
Shift Register(Bit)	R	R	0 - 63	R/W	Dec

- Word Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Data Register	D	D	0 - 499	R/W	Dec
Input(Word)	WI	I	0 - 20	R	Dec(*2)
Output(Word)	WQ	Q	0 - 20	R/W	Dec(*2)
Internal Relay(Word)	WM	M	0 - 260	R/W	Dec(*2)
Timer(Current)	TN	T	0 - 31	R	Dec
Counter(Current)	CN	C	0 - 31	R	Dec
Timer(Preset)	TP	T	0 - 31	R/W	Dec
Counter(Preset)	CP	C	0 - 31	R/W	Dec
Error Register	E	-	0 - 5	R/W	Dec

*1 Set position 1 for this device in octal.

*2 Set this device using a multiplier of 20.

Usage limitations may exist for PLC devices depending on the operating conditions. Refer to the PLC manual to confirm performance under your actual operating conditions.

1.5.4 OpenNet Controller/MICROSmart (uses Web Server Unit)

・ Bit Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Internal Relay(Bit)	M	M	0 - 2557	R/W	(*1)
Input(Bit)	I	I	0 – 627	R	(*1)
Output(Bit)	Q	Q	0 – 627	R/W	(*1)
Timer(Contact)	T	T	0 – 255	R	Dec
Counter(Contact)	C	C	0 - 255	R	Dec
Spec.Int.Relay(Bit)	SM	M	8000 - 8317	R/W	(*1)
Shift Register(Bit)	R	R	0 - 255	R	Dec

・ Word Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Data Register	D	D	0 - 49999	R/W	Dec
Input(Word)	WI	I	0 - 620	R	Dec(*2)
Output(Word)	WQ	Q	0 - 620	R/W	Dec(*2)
Internal Relay(Word)	WM	M	0 - 2540	R/W	Dec(*2)
Timer(Current)	TN	T	0 - 255	R	Dec
Counter(Current)	CN	C	0 - 255	R	Dec
Timer(Preset)	TP	T	0 - 255	R/W	Dec
Counter(Preset)	CP	C	0 - 255	R/W	Dec
Link Register	L	L	100 - 1317	R/W	(*1)
Shift Register(Word)	WR	R	0 - 240	R	Dec(*3)
Error Register	E	-	0 - 5	R/W	Dec
Spec.Int.Relay(Word)	WSM	M	8000 - 8300	R/W	Dec(*2)
Spec.Data Register	SD	D	8000 - 8999	R	Dec

*1 Set position 1 for this device in octal.

*2 Set this device using a multiplier of 20.

*3 Set this device using a multiplier of 16.

Usage limitations may exist for PLC devices depending on the operating conditions. Refer to the PLC manual to confirm performance under your actual operating conditions.

2 Mitsubishi

Selecting MELSEC-Q (CPU), MELSEC-FX (CPU), MELSEC-FX2N (CPU), or MELSEC-FX3U (CPU) for the Host I/F Driver allows the user to use the Pass-through function.
Selecting MELSEC-Q/QnA(Ethernet) for the Host I/F Driver allows the user to use the 1:N Communication.

・Pass-through function (→ Chapter 5 Pass-Through Function)
・1:N Communication (→ Chapter 6 1:N Communication (Multi-drop)

2.1 Connection Table

2.1.1 Compatible PLCs

Manufacturer	Series Name	System (CPU unit)	Link Unit	WindO/I-NV2 Setting Name		
				Interface	Flow Control	Host I/F Driver
Mitsubishi	MELSEC-A	A1N, A2N, A3N	AJ71C24 AJ71C24-S3 /-S6/-S8 AJ71UC24	RS-232C (Connection Diagram 2-1)	ER control	MELSEC-AnN (LINK)
				RS-485 (422)-4 (Connection Diagram 2-2)		
		A1SH	A1SJ71C24-R2 A1SJ71UC24-R2 A1SJ71C24-R4 A1SJ71UC24-R4	RS-232C (Connection Diagram 2-3)		
				RS-485 (422)-4 (Connection Diagram 2-2)		
		A2CCPUC24	Not required (connects to CPU unit)	RS-232C (Connection Diagram 2-3)		
		A0J2, A0J2H	A0J2-C214-S1	RS-232C (Connection Diagram 2-1)		
				RS-485 (422)-4 (Connection Diagram 2-2)		
		A2A, A3A, A2U, A3U, A4U	AJ71C24-S6/-S8 AJ71UC24	RS-232C (Connection Diagram 2-1)	ER control	MELSEC-AnA (LINK)
				RS-485 (422)-4 (Connection Diagram 2-2)		

		A2US, A2USH-S1	A1SJ71C24-R2 A1SJ71UC24-R2 A1SJ71C24-R4 A1SJ71UC24-R2	RS-232C (Connection Diagram 2-3) RS-485 (422)-4 (Connection Diagram 2-2)		
		A2N	Not required (Connects to CPU unit)	RS-485 (422)-4 (Connection Diagram 2-4)	None	MELSEC-An N (CPU)
		A1SJH A1SH, A2SH, A2C, A0J2H	Not required (Connects to CPU unit)	RS-485 (422)-4 (Connection Diagram 2-4)	None	MELSEC-A1S /A2C(CPU)
		A2A, A3A, A2US, A2USH	Not required (Connects to CPU unit)	RS-485 (422)-4 (Connection Diagram 2-4)	None	MELSEC-AnA (CPU)
		A2U, A2USH-S1	Not required (Connects to CPU unit)	RS-485 (422)-4 (Connection Diagram 2-4)	None	MELSEC-An U (CPU)

* We tested with the PLC of underline part.

Manufacturer	Series Name	System (CPU unit)	Link Unit	WindO/I-NV2 Setting Name		
				Interface	Flow Control	Host I/F Driver
Mitsubishi	MELSEC-QnA	Q4A CPU Q4ARCPU Q3ACPU Q2ACPU-S1 Q2ACPU	AJ71QC24N-R2	RS-232C (Connection Diagram 2-1)	None	MELSEC-Q /QnA（LINK）
			AJ71QC24N	RS-485/422 (Connection Diagram 2-2)		
			AJ71QC24N-R4			
				RS-485/422 (Connection Diagram 2-9)		
			AJ71QE71N3-T	Ethernet	-	MELSEC-Q/ QnA (Ethernet)
			AJ71QE71N-B2			
			AJ71QE71N-B5			
		Q2ASH CPU-S1 Q2ASHCPU Q2ASCPU-S1 Q2ASCPU	A1SJ71QC24N-R2	RS-232C (Connection Diagram 2-3)	None	MELSEC-Q /QnA（LINK）
				RS-485（422）-4(Connection Diagram 2-2)		
			A1SJ71QC24N			
			A1SJ71QE71N3-T	Ethernet	-	MELSEC-Q/ QnA (Ethernet)
			A1SJ71QE71N-B2			
			A1SJ71QE71N-B5			

* We tested with the PLC of underline part.

Manufacturer	Series Name	System (CPU unit)	Link Unit	WindO/I-NV2 Setting Name		
				Interface	Flow Control	Host I/F Driver
Mitsubishi	MELSEC-Q	Q00CPU, Q01CPU	Not required (connects to CPU unit)	RS-232C (Connection Diagram 2-6) (Connection Diagram 2-7)	ER control	MELSEC-Q /QnA(LINK)
		Q02CPU Q02HCPU Q06HCPU Q12PHCPU Q25HCPU	QJ71C24 QJ71C24N QJ71C24N-R2	RS-232C (Connection Diagram 2-3)	ER control	
				RS-485(422)-4 (Connection Diagram 2-2)		
		Q02CPU Q02HCPU	Not required (connects to CPU unit)	RS-232C (Connection Diagram 2-6) (Connection Diagram 2-7)	ER control	MELSEC-Q (CPU)
		Q02CPU-A mode	Not required (connects to CPU unit)	RS-232C (Connection Diagram 2-6) (Connection Diagram 2-7)	ER control	MELSEC-An U(CPU)
		Q00JCPU Q00CPU Q01CPU	QJ71E71-100 QJ71E71-B5 QJ71E71-B2	Ethernet	-	MELSEC-Q/ QnA (Ethernet)
		Q02CPU Q02HCPU Q06HCPU Q12HCPU Q25HCPU				

* We tested with the PLC of underline part.

Manufacturer	Series Name	System (CPU unit)	Link Unit	WindO/I-NV2 Setting Name		
				Interface	Flow Control	Host I/F Driver
Mitsubishi	MELSEC-FX	FX0, FX0N, FX1, FX2, FX2C,	Not required (connects to CPU unit)	RS-485 (422)-4 (Connection Diagram 2-4)	ER control	MELSEC-FX (CPU)
		(FX1N),FX0S, FX1S	Not required (connects to CPU unit)	RS-485 (422)-4 (Connection Diagram 2-4)	ER control	
				RS-485 (422) (Connection Diagram 2-10)		
		FX2N, FX2NC, FX1N, FX1NC	Not required (connects to CPU unit)	RS-485 (422)-4 (Connection Diagram 2-4)	ER control	MELSEC-FX2N (CPU)
				RS-485 (422) (Connection Diagram 2-10)		
			FX2NC-232ADP	RS-232C (Connection Diagram 2-8)		
		FX2N	FX2N-232-BD (*)	RS-232C (Connection Diagram 2-5)		
			FX2N-422-BD (*)	RS-485 (422)-4 (Connection Diagram 2-4)		
				RS-485 (422) (Connection Diagram 2-10)		
		FX1N	FX1N-232-BD (*)	RS-232C (Connection Diagram 2-5)		
			FX1N-422-BD (*)	RS-485 (422)-4 (Connection Diagram 2-4)		
				RS-485 (422) (Connection Diagram 2-10)		
		FX3UC FX3U	Not required (connects to CPU unit)	RS-485 (422)-4 (Connection Diagram 2-4)	ER control	MELSEC-FX3UC (CPU)
			FX3U-232ADP	RS-232C (Connection Diagram 2-8)		
			FX3U-232-BD			

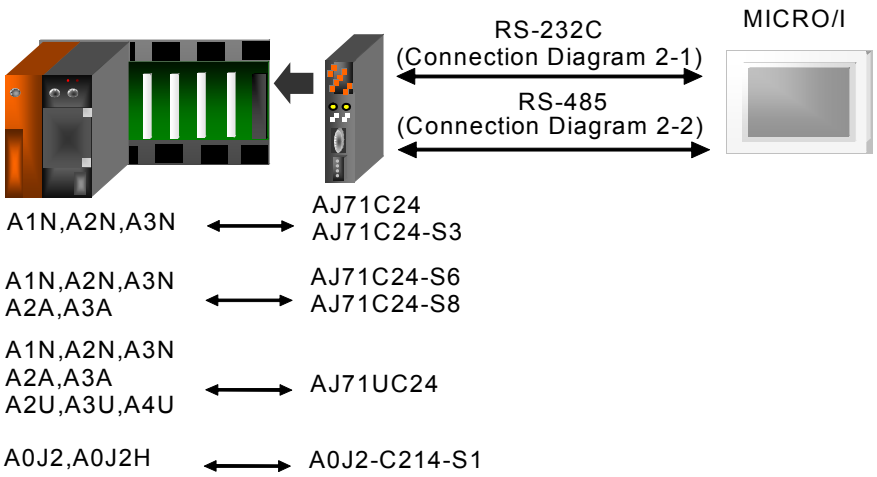
* We tested with the PLC of underline part.

(*) These are communication boards.

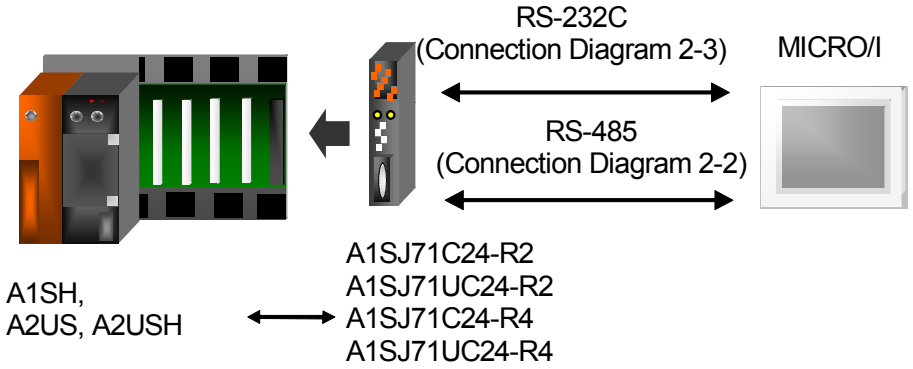
2.2 System Configuration

This is the system configuration for connection of Mitsubishi PLCs to the MICRO/I.

2.2.1 MELSEC-A Series (using the Computer Link Unit)

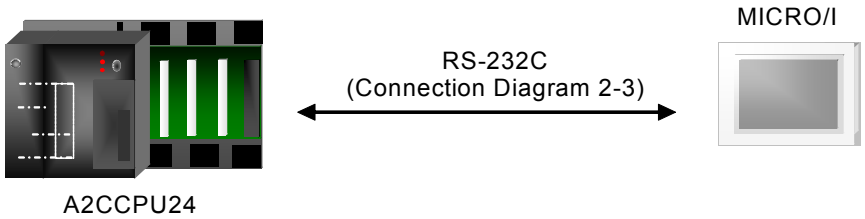


In case of HG2F/3F/4Fa connection cable is available for Connection Diagram 2-1 (part number: HG9Z-3C135).
In case of HG1F a connection cable is available for Connection Diagram 2-1 (part number: HG9Z-XC145).



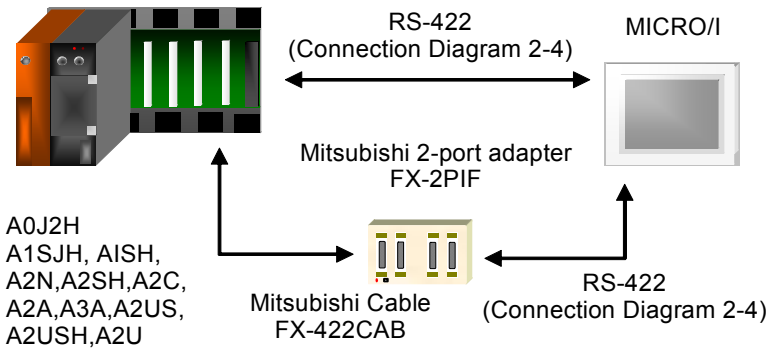
In case of HG2F/3F/4F a connection cable is available for Connection Diagram 2-3 (part number: HG9Z-3C145).
In case of HG1F a connection cable is available for Connection Diagram 2-3 (part number: HG9Z-XC203).

2.2.2 MELSEC-A Series (connected to the CPU Unit Link I/F)



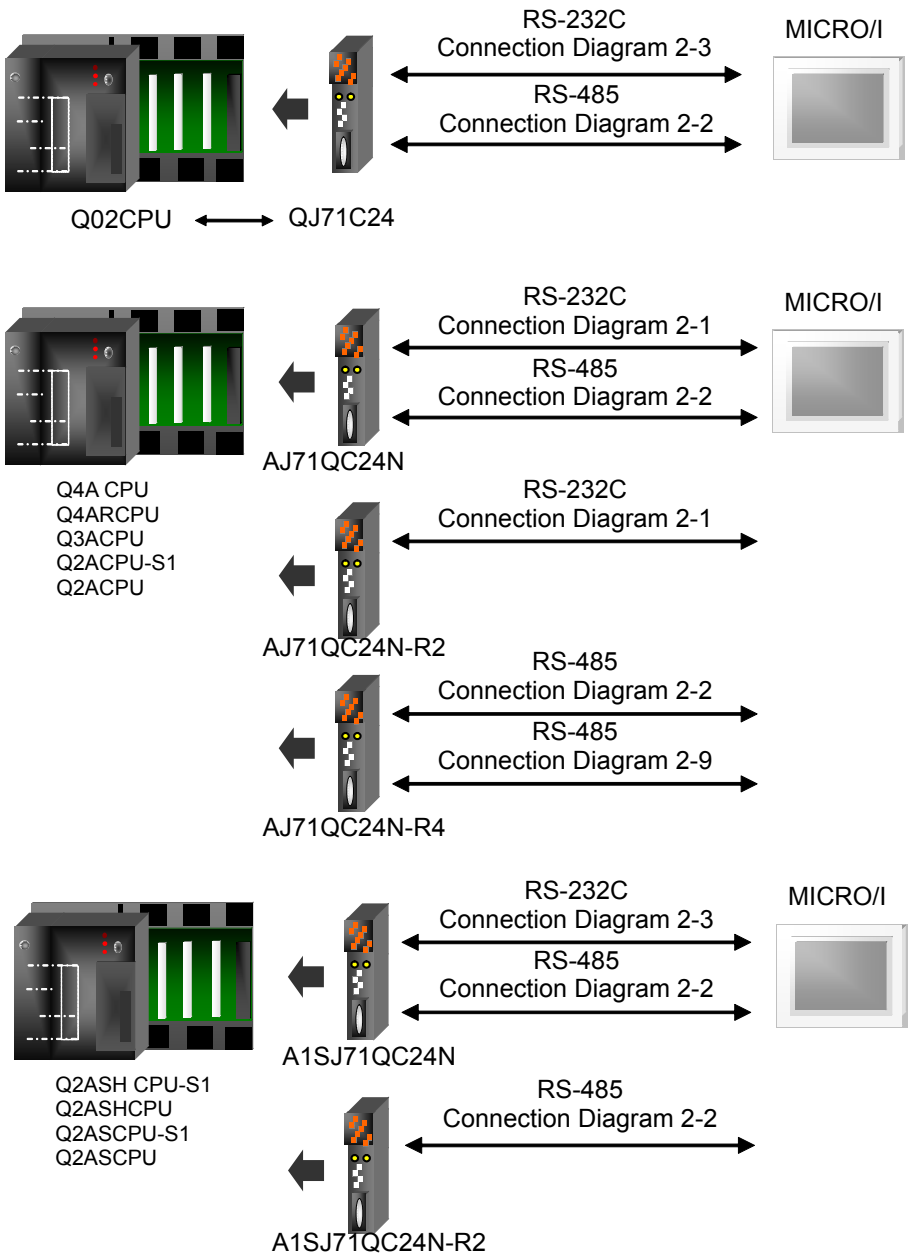
In case of HG2F/3F/4F a connection cable is available for Connection Diagram 2-3 (part number: HG9Z-3C145).
In case of HG1F a connection cable is available for Connection Diagram 2-3 (part number: HG9Z-XC203).

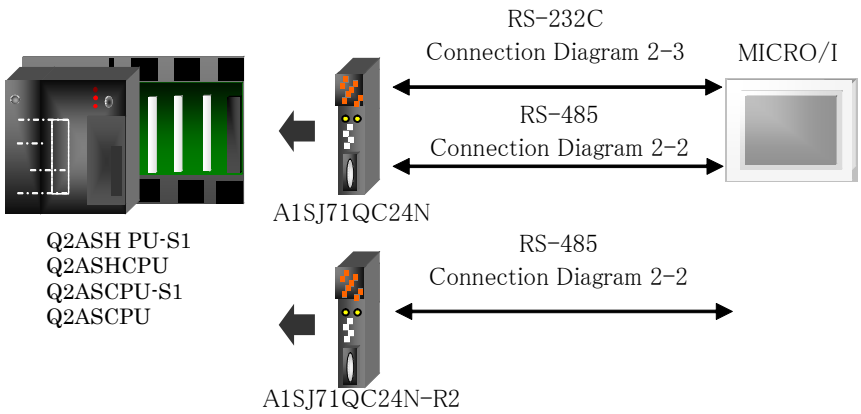
2.2.3 MELSEC-A Series (connected to the CPU Unit Programming Port)



In case of HG2F/3F/4F a connection cable is available for Connection Diagram 2-4 (part number: HG9Z-3C165).
In case of HG1F a connection cable is available for Connection Diagram 2-4 (part number: HG9Z-XC255).

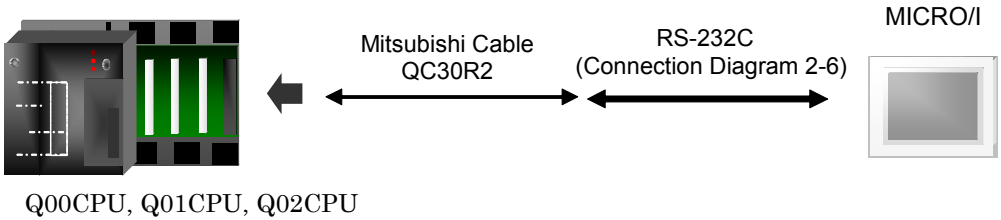
2.2.4 MELSEC-Q/QnA Series (using the Computer Link Unit)

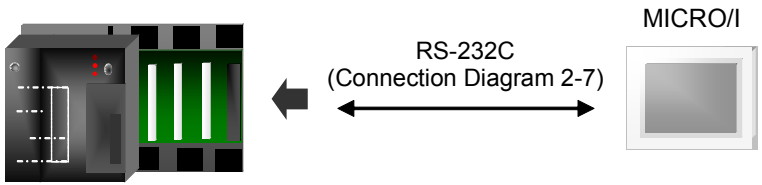




In case of HG2F/3F/4F a connection cable is available for Connection Diagram 2-3 (part number: HG9Z-3C145).
In case of HG1F a connection cable is available for Connection Diagram 2-3 (part number: HG9Z-XC203).

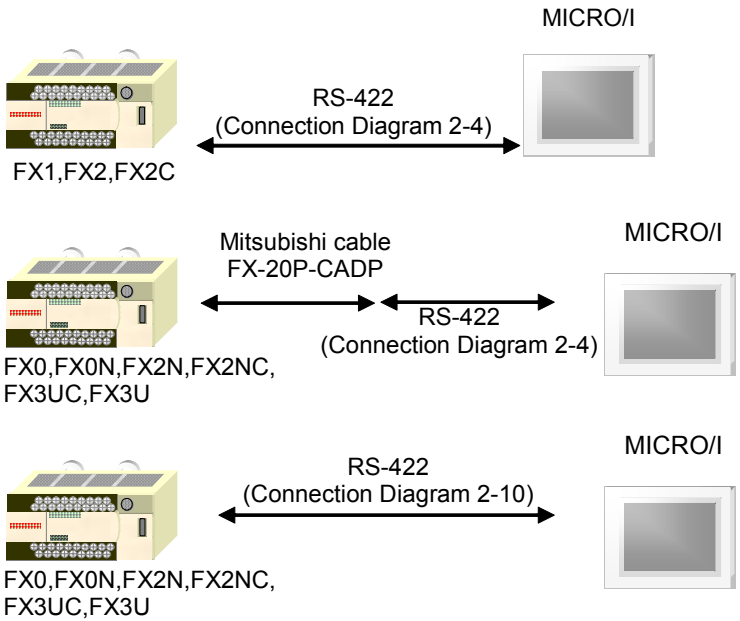
2.2.5 MELSEC-Q Series (connected to the CPU Unit Programming Port)



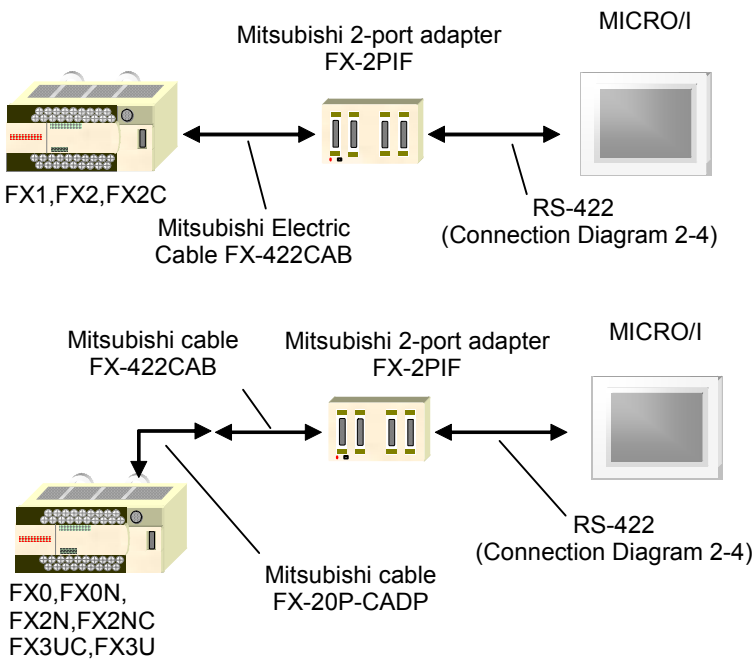


In case of HG1F connection cable is available for Connection Diagram 2-7 (part number: HG9Z-XC265).

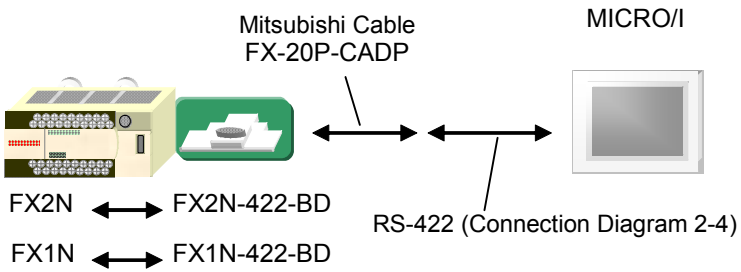
2.2.6 MELSEC-FX Series (connects to the CPU unit programming port)



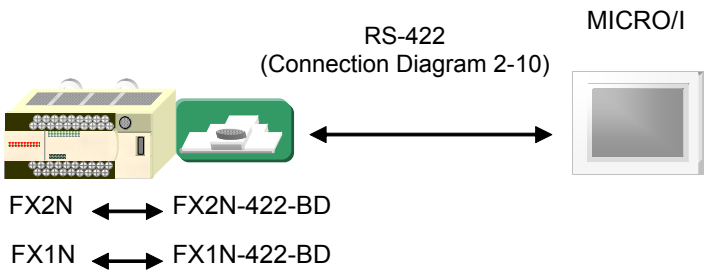
In case of HG1F a connection cable is available for Connection Diagram 2-10 (part number: HG9Z-XC245).



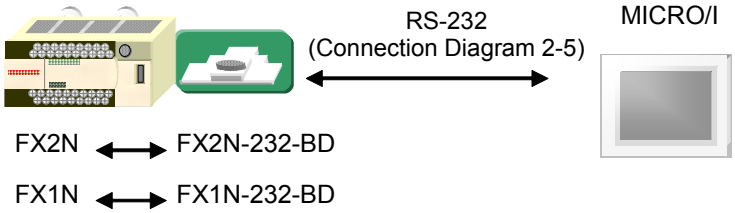
In case of HG2F/3F/4F a connection cable is available for Connection Diagram 2-4 (part number: HG9Z-3C165).
In case of HG1F a connection cable is available for Connection Diagram 2-4 (part number: HG9Z-XC255).

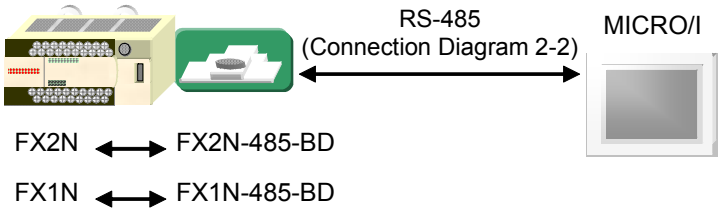


In case of HG2F/3F/4F a connection cable is available for Connection Diagram 2-4 (part number: HG9Z-3C165).
In case of HG1F a connection cable is available for Connection Diagram 2-4 (part number: HG9Z-XC255).

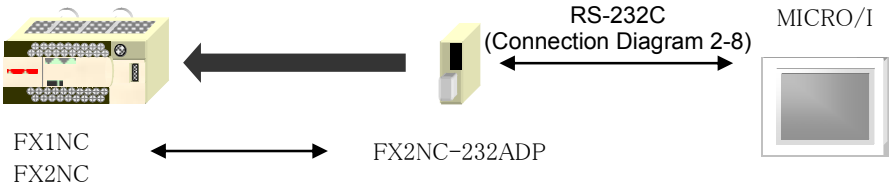


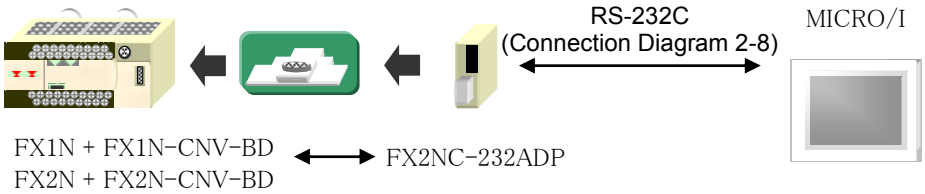
In case of HG1F a connection cable is available for Connection Diagram 2-10 (part number: HG9Z-XC245).

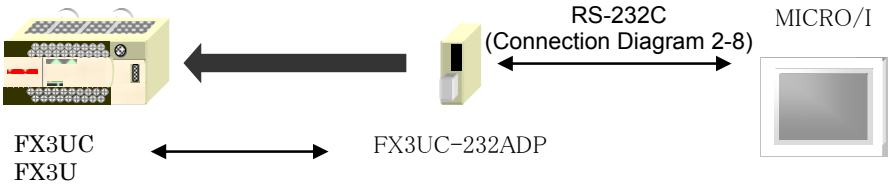




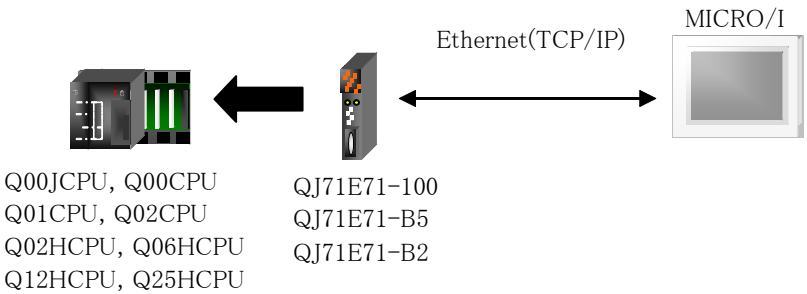
2.2.7 MELSEC-FX Series (connects to FX2NC-232ADP/FX3U-232ADP)

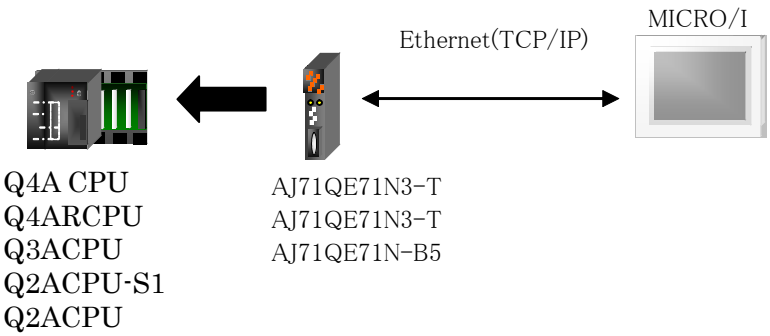


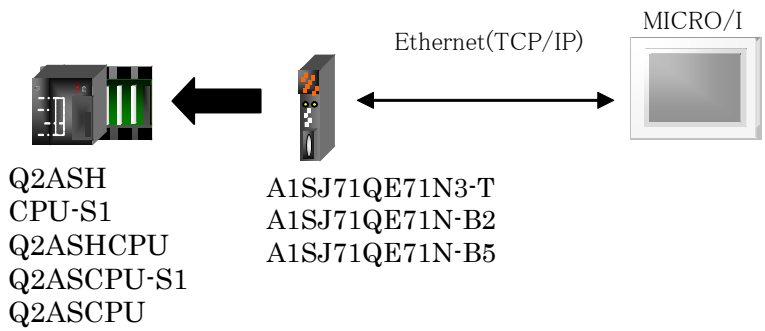




2.2.8 MELSEC-Q/QnA Series (Using the Ethernet Unit)



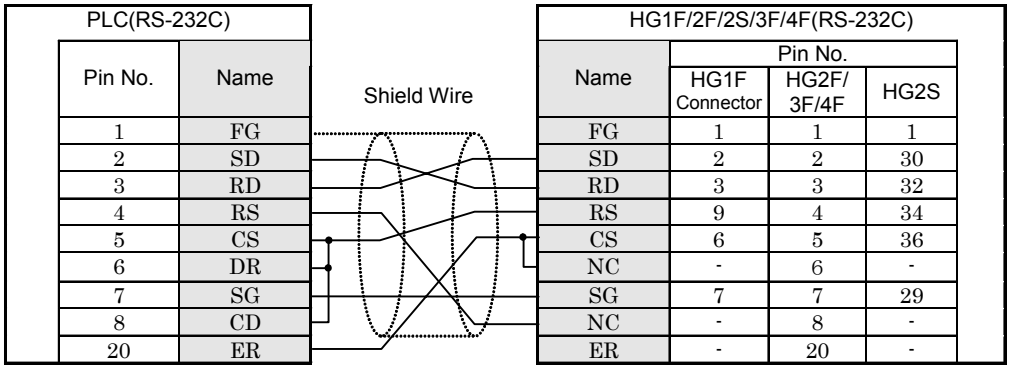




2.3 Connection Diagram

The connector types given in the Connection Diagrams are for the unit and not the cable.

Connection Diagram 2-1: Computer Link Unit (RS-232) to MICRO/I



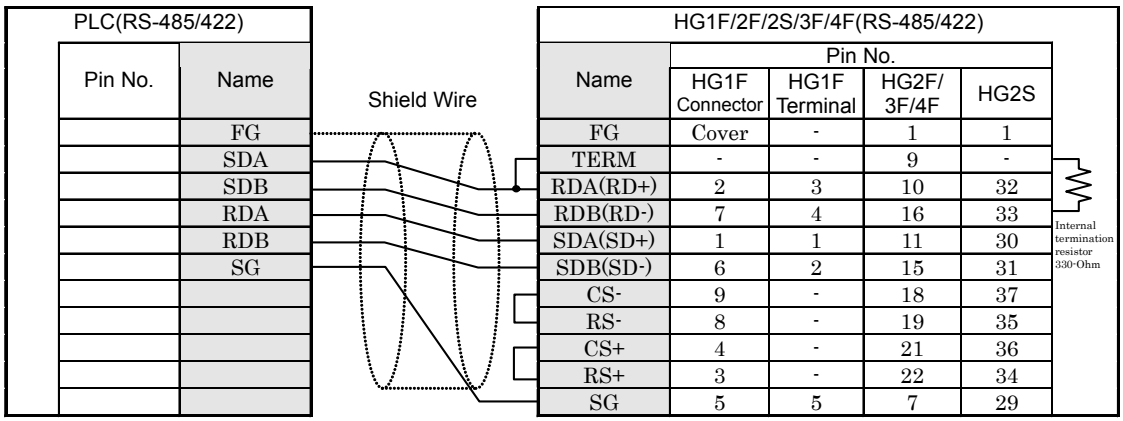
D-sub, 25P connector socket type

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

In case of HG2F/3F/4Fa connection cable is available (part number: HG9Z-3C135).
The connection diagram 2-1 is not same as HG9Z-3C135. But both diagrams are available.
Refer to the Hardware Manual about the connection diagram of HG9Z-3C135.

In case of HG1F a connection cable is available (part number: HG9Z-XC145).
The connection diagram 2-1 is not same as HG9Z-XC145. But both diagrams are available.
Refer to the Hardware Manual about the connection diagram of HG9Z-XC145.

Connection Diagram 2-2: Computer Link Unit (RS-485) to MICRO/I



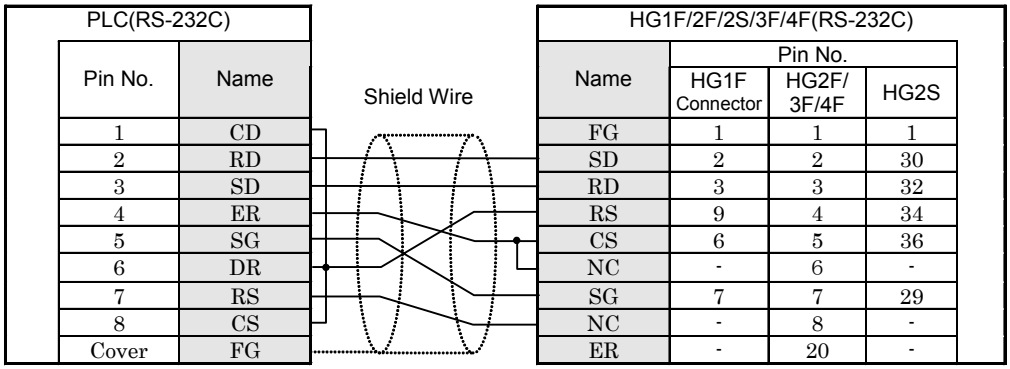
Screw-down terminal block

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

- When using the QJ71C24 Serial Communication Unit, connect a terminator resistor in accordance with the instruction manual.
- There is no pin No. corresponding to TERM on the HG1F/HG2S. When inserting a termination resistor, use a communication switch. For the setting of the switch, refer to "3 Important Points Regarding Wiring" in Chapter 1.

WARNING When you use the Terminal Block type of HG1F, make sure to configure the Hardware Flow control to NONE because the HG1F doesn't have control lines.

Connection Diagram 2-3: Computer Link Unit (RS-232C) to MICRO/I



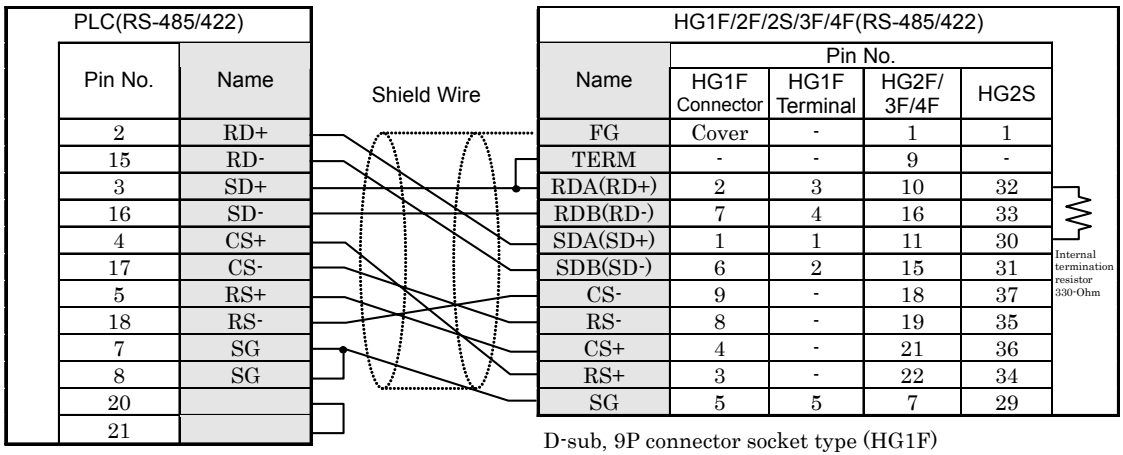
D-sub, 9P connector socket type

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

In case of HG2F/3F/4Fa connection cable is available (part number: HG9Z-3C145).
The connection diagram 2-3 is not same as HG9Z-3C145. But both diagrams are available.
Refer to the Hardware Manual about the connection diagram of HG9Z-3C145.

In case of HG1F a connection cable is available (part number: HG9Z-XC203).
The connection diagram 2-3 is not same as HG9Z-XC203. But both diagrams are available.
Refer to the Hardware Manual about the connection diagram of HG9Z-XC203.

Connection Diagram 2-4: PLC, 2-port Adapter to MICRO/I



D-sub, 25P connector socket type (unit side)

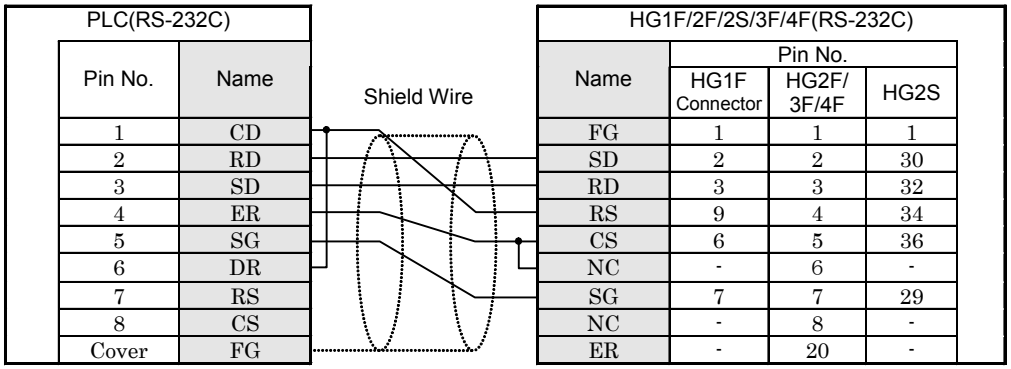
D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

- In case of HG2F/3F/4F a connection cable is available (part number: HG9Z-3C165).
- In case of HG1F a connection cable is available (part number: HG9Z-XC255).
- There is no pin No. corresponding to TERM on the HG1F/HG2S. When inserting a termination resistor, use a communication switch. For the setting of the switch, refer to "3 Important Points Regarding Wiring" in Chapter 1.

WARNING

When you connect to the CPU port of MELSEC-A series and MELSEC-FX series of Mitsubishi Electric, use D-sub 9Pin connector, NOT the Terminal Block type.

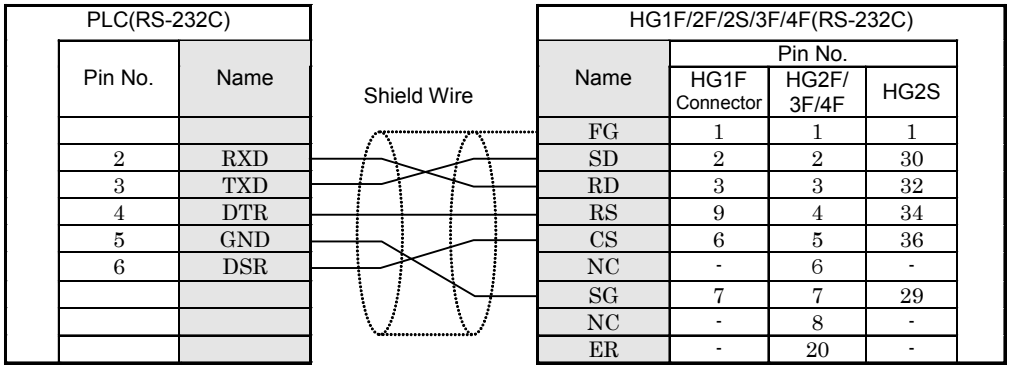
Connection Diagram 2-5: FX2N-232-BD to MICRO/I



D-sub, 9P connector plug type

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

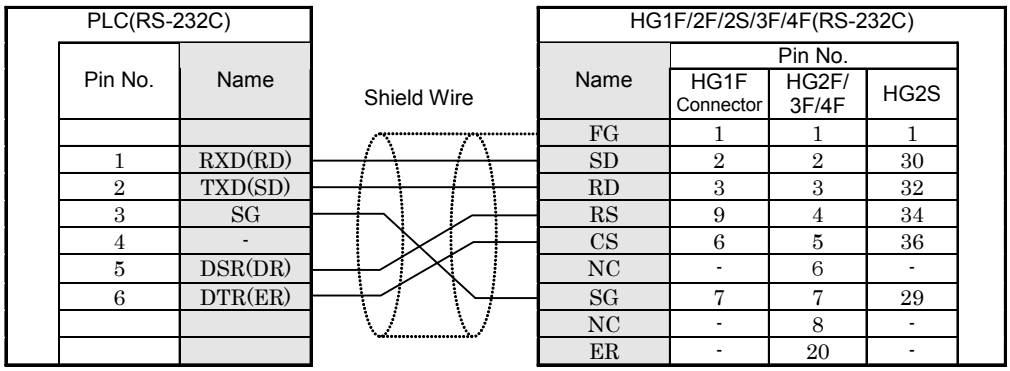
Connection Diagram 2-6: MELSEC-Q (Mitsubishi cable QC30R2) to MICRO/I



D-sub, 9P connector socket type
(cable side)

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

Connection Diagram 2-7: MELSEC-Q(CPU unit programming port)to MICRO/I

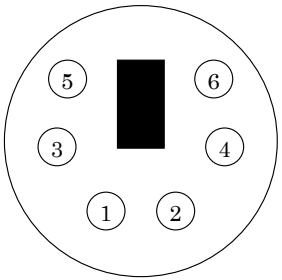


Mini DIN 6P socket connector
(unit side)

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

Chap.2

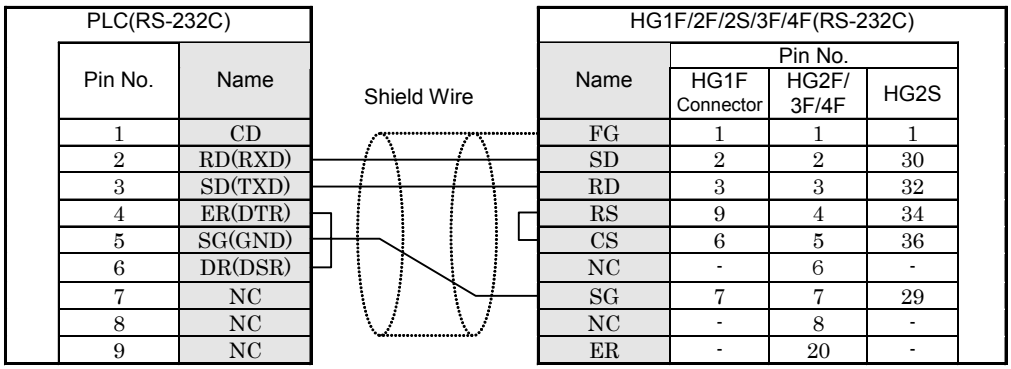
Mini-Din 6 Pin plug pin assignment by the side of the Mitsubishi Q series



Mini Din 6 Pin plug Cable side pin assignment

- In case of HG1F a connection cable is available (part number: HG9Z-XC265).

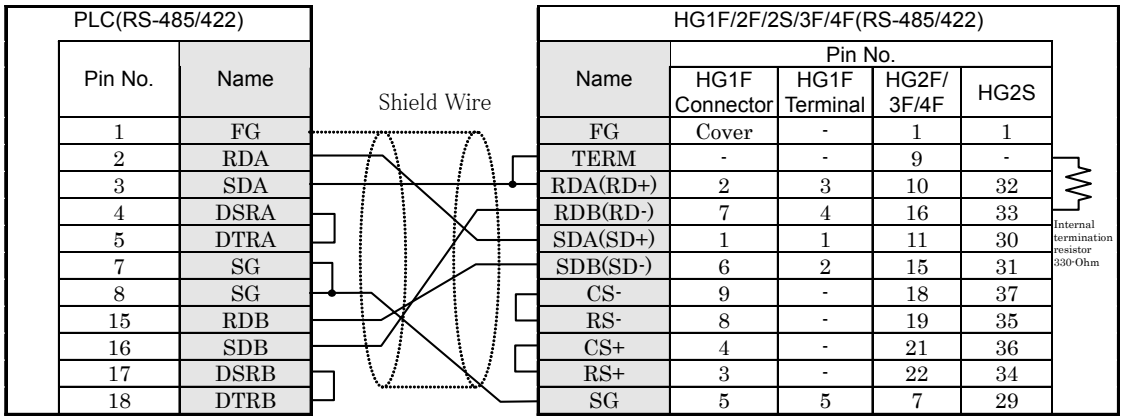
Connection Diagram 2-8: FX2NC-232ADP/FX3U-232ADP ― MICRO/I to MICRO/I



D-sub, 9P connector plug type

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

Connection Diagram 2-9: Computer Link Unit (RS-485) to MICRO/I



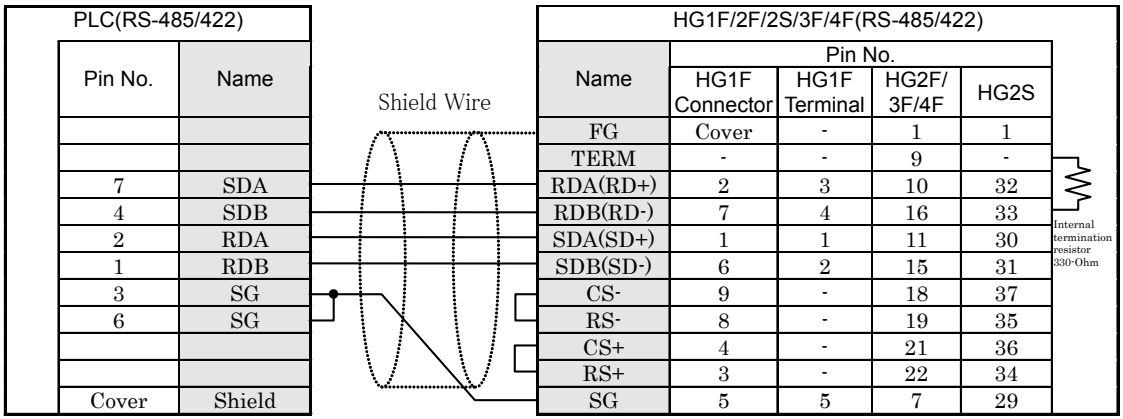
D-sub, 25P connector socket type

D-sub, 9P connector socket type/Terminal block (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

- There is no pin No. corresponding to TERM on the HG1F/HG2S. When inserting a termination resistor, use a communication switch. For the setting of the switch, refer to "3 Important Points Regarding Wiring" in Chapter 1.

WARNING When you use the Terminal Block type of HG1F, make sure to configure the Hardware Flow control to NONE because the HG1F doesn't have control lines.

Connection Diagram 2-10: MELSEC-FX Series CPU (RS-485) to MICRO/I



Mini DIN 8P Connector

D-sub, 9P connector socket type/Terminal block (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

- There is no pin No. corresponding to TERM on the HG1F/HG2S. When inserting a termination resistor, use a communication switch. For the setting of the switch, refer to "3 Important Points Regarding Wiring" in Chapter 1.

WARNING When you use the Terminal Block type of HG1F, make sure to configure the Hardware Flow control to NONE because the HG1F doesn't have control lines.

2.4 Environment Settings

2.4.1 MELSEC-A Series: Settings for the Computer Link Unit and CPU Unit Link I/F

<table>
<tr><th colspan="2" rowspan="2">Item</th><th colspan="2">Setting</th></tr>
<tr><th>RS-232C</th><th>RS-485</th></tr>
<tr><td colspan="2" rowspan="2">Transmission Control Protocol</td><td colspan="2">Format 4 protocol mode</td></tr>
<tr><td>Set the mode setting switch to 4.</td><td>Set the mode setting switch to 8.</td></tr>
<tr><td>Station Number</td><td rowspan="5">Use the same settings as for the MICRO/I.</td><td colspan="2">Set using the Station Number setting switch.</td></tr>
<tr><td>Data Bits</td><td colspan="2">7 or 8
(set using the Transmission Specifications setting switch)</td></tr>
<tr><td>Baud Rate</td><td colspan="2">1200, 2400, 4800, 9600 or 19200 bps
(set using the Transmission Specifications setting switch)</td></tr>
<tr><td>Parity</td><td colspan="2">None, Even or Odd
(set using the Transmission Specifications setting switch)</td></tr>
<tr><td>Stop Bits</td><td colspan="2">1 or 2
(set using the Transmission Specifications setting switch)</td></tr>
<tr><td colspan="2">Checksum</td><td colspan="2">Yes
(set using the Transmission Specifications setting switch)</td></tr>
<tr><td colspan="2">Write During RUN</td><td colspan="2">Possible
(set using the Transmission Specifications setting switch)</td></tr>
<tr><td colspan="2">Transmission Side Termination Resistor</td><td>No</td><td>Yes
(set using the Transmission Specifications setting switch)</td></tr>
<tr><td colspan="2">Receive Side Termination Resistor</td><td>No</td><td>Yes
(set using the Transmission Specifications setting switch)</td></tr>
<tr><td colspan="2">Computer Link/Multi Drop Selection</td><td colspan="2">Computer Link
(set using the Transmission Specifications setting switch)
Note: Only set if this item is present.</td></tr>
</table>

Refer to the Link Unit manual for details.

2.4.2 MELSEC-A Series: Connection to the Programming Port or 2-port Adapter

Item		Setting
Communication Interface		RS-422
Data Bits	Use the same settings as for the MICRO/I.	8 (fixed)
Baud Rate		9600 (fixed)
Parity		Odd (fixed)
Stop Bits		1 (fixed)

When using CPU Direct for the connection, the PLC program scan time will increase when it starts communicating with the MICRO/I. Investigate this under your actual operating conditions.

2.4.3 MELSEC-Q/QnA Series: Settings for the Computer Link Unit

Item		Setting
		RS-422
Communication protocol		MC Protocol (Format 4)
Station Number	Use the same settings as for the MICRO/I.	0(DEC)
Data Bits		7 or 8
Baud Rate		1200, 2400, 4800, 9600, 19200, 38400, 57600 or 115200 bps
Parity		None, Even or Odd
Stop Bits		1 or 2
Checksum Code		Yes
Write During RUN		Possible

The PLC settings are performed using the I/O allocation for the GPPW.

Refer to the Q-compatible Serial Communication Unit user manual (Basic) for details.

2.4.4 MELSEC-Q00, 01CPU: Connection to the Programming Port

Please confirm by parameter setup of MELSEC-Q00 and 01CPU "using a serial communication function."

Item		Setting
Station Number	Use the same settings as for the MICRO/I.	0(DEC)
Data Bits		8bit(fixed)
Baud Rate		19200/38400/57600/115200 bps
Parity		Odd
Stop Bits		1bit
Checksum Code		Yes

2.4.5 MELSEC-Q02CPU: Connection to the Programming Port

Item	Setting
Data Bits	8bit(fixed)
Baud Rate	9600/19200/38400/57600/115200 bps
Parity	Odd
Stop Bits	1bit

2.4.6 MELSEC-FX Series

Item		Setting
Communication Interface		RS-232C/RS-422
Data Bits	Use the same settings as for the MICRO/I.	7 (fixed)
Baud Rate		9600 bps (fixed)
Parity		Even (fixed)
Stop Bits		1 (fixed)

When using CPU Direct for the connection, the PLC program scan time will increase when it starts communicating with the MICRO/I. Investigate this under your actual operating conditions.

To connect MELSEC-FX series PLC and MICRO/I, check the following two things.
- Uncheck the communication setting by the programming software.
- Data Register 8120 (D8120) must be 0.

If the PLC is MELSEC-FX3U or MELSEC-3UC, check the following two thins too.
- If MICRO/I connects to CH1 on the PLC, Data Register 8400 (D8400) must be 0.
- If MICRO/I connects to CH2 on the PLC, Data Register 8420 (D8420) must be 0.

2.4.7 MELSEC-Q/QnA：In case using Ethernet Unit setting

MICRO/I setting

Item	Setting
IP Address	Set IP Address to MICRO/I
Sub net mask	Set Sub net mask to MICRO/I
Default Gateway	Set Default Gateway to MICRO/I

Item	Setting
IP Address	Set IP Address to PLC
PORT	Set Port number for communicate with PLC by MICRO/I

MELSEC-Q/QnA(Ethernet) is not good at the thing communicated with the sequencer connected via MELSECNET/H network and MELSECNET/10 network.

PLC Settings

Item			setteing	notes
network parameter	Network type		Ethernet	(*1)
	Starting I/O No.		0020	(*2)
	NetworkNo.		1	(*2)
	Total stations		–	–
	Group No.		0	(*2)
	Station No.		1	(*2)
	Mode		On line	(*1)
Operation Setting	Communication data code		Binary code	(*1)
	Initial Timing		Always wait for OPEN	(*1)
	IP Address	Input format	Decimal	(*2)
		IP address	Set IP Address of PLC	(*2)
	Send frame setting		Ethernet	(*1)
	Enable Write at RUN time		Check mark(enable)	(*1)
	TCP Existence confirmation setting		Use the KeepAlive	(*1)
Open Setting	Protocol		TCP/IP	(*1)
	Open system		Unpassive open	(*1)
	Fixed buffer		Send	(*1)
	Fixed buffer communication		Procedure exist	(*1)
	Pairing open		No pairs	(*1)
	Existence confirmation		No confirm	(*1)
	Local station Port No.		set an arbitrary port number	(*2)(*3)
	Destination IP address		–	–
	Dest. Port No.		–	–

Refer to the Q Corresponding Ethernet Interface Module User's Manual or Q Corresponding Ethernet Interface Module User's Manual for detail.

(*1) The setting of the above-mentioned is recommended.

(*2) Set it according to the environment.

(*3) MICRO/I is set by the decimal number though PLC is set by the hexadecimal number.

2.5 Usable Devices

2.5.1 MELSEC-AnA (LINK)

Bit Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Input Relay	X	X	0 - 1FFF	R	(*1)
Output Relay	Y	Y	0 - 1FFF	R/W	(*1)
Internal Relay	M	M	0 - 8191	R/W	
Link Relay	B	B	0 - 1FFF	R/W	(*1)
Latch Relay	L	L	0 - 8191	R/W	
Timer (contact)	TS	T	0 - 2047	R	
Timer (coil)	TC	T	0 - 2047	R/W	
Counter (contact)	CS	C	0 - 1023	R	
Counter (coil)	CC	C	0 - 1023	R/W	
Special Internal Relay	SM	SM	9000 - 9255	R	
Annunciator	F	F	0 - 2047	R/W	

Word Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Input Relay	WX	X	0 - 1FF0	R	(*1) (*2)
Output Relay	WY	Y	0 - 1FF0	R/W	(*1) (*2)
Internal Relay	WM	M	0 - 8176	R/W	(*2)
Link Relay	WB	B	0 - 1FF0	R/W	(*1) (*2)
Latch Relay	WL	L	0 - 8176	R/W	(*2)
Timer (current value)	TN	T	0 - 2047	R	
Counter(current value)	CN	C	0 - 1023	R	
Data Register	D	D	0 - 8191	R/W	
Link Register	W	W	0 - 1FFF	R/W	(*1)
Annunciator	WF	F	0 - 2032	R/W	(*2)
Special Internal Relay	WSM	SM	9000 - 9240	R	(*2)
Special register	SD	SD	9000 - 9255	R	
File register	R	R	0 - 8191	R/W	
Expansion file register	ER	ZR	0 - 58191	R/W	

(*1) Set this device using hexadecimal.

(*2) Set this device using a multiplier of 16.

2.5.1 MELSEC-AnN (LINK)

Bit Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Input Relay	X	X	0 - 7FF	R	(*1)
Output Relay	Y	Y	0 - 7FF	R/W	(*1)
Internal Relay	M	M	0 - 2047	R/W	
Link Relay	B	B	0 - 3FF	R/W	(*1)
Latch Relay	L	L	0 - 2047	R/W	
Timer (contact)	TS	T	0 - 255	R	
Timer (coil)	TC	T	0 - 255	R/W	
Counter (contact)	CS	C	0 - 255	R	
Counter (coil)	CC	C	0 - 255	R/W	
Special Internal Relay	SM	SM	9000 - 9255	R	
Annunciator	F	F	0 - 255	R/W	

Word Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Input Relay	WX	X	0 - 7F0	R	(*1) (*2)
Output Relay	WY	Y	0 - 7F0	R/W	(*1) (*2)
Internal Relay	WM	M	0 - 2032	R/W	(*2)
Link Relay	WB	B	0 - 3F0	R/W	(*1) (*2)
Latch Relay	WL	L	0 - 2032	R/W	(*2)
Timer (current value)	TN	T	0 - 255	R	
Counter(current value)	CN	C	0 - 255	R	
Data Register	D	D	0 - 1023	R/W	
Link Register	W	W	0 - 3FF	R/W	(*1)
Annunciator	WF	F	0 - 240	R/W	(*2)
Special Internal Relay	WSM	SM	9000 - 9240	R	(*2)
Special register	SD	SD	9000 - 9255	R	
File register	R	R	0 - 8191	R/W	

(*1) Set this device using hexadecimal.

(*2) Set this device using a multiplier of 16.

2.5.2 MELSEC-AnA (CPU)

Bit Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Input Relay	X	X	0 - 7FF	R	(*1)
Output Relay	Y	Y	0 - 7FF	R/W	(*1)
Internal Relay	M	M	0 - 8191	R/W	
Link Relay	B	B	0 - 7FF	R/W	(*1)
Latch Relay	L	L	0 - 8191	R/W	
Timer (contact)	TS	T	0 - 2047	R	
Timer (coil)	TC	T	0 - 2047	R/W	
Counter (contact)	CS	C	0 - 1023	R	
Counter (coil)	CC	C	0 - 1023	R/W	
Special Internal Relay	SM	SM	9000 - 9255	R	
Annunciator	F	F	0 - 2047	R/W	

Word Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Input Relay	WX	X	0 - 7F0	R	(*1) (*2)
Output Relay	WY	Y	0 - 7F0	R/W	(*1) (*2)
Internal Relay	WM	M	0 - 8176	R/W	(*2)
Link Relay	WB	B	0 - 7F0	R/W	(*1) (*2)
Latch Relay	WL	L	0 - 8176	R/W	(*2)
Timer (current value)	TN	T	0 - 2047	R	
Counter (current value)	CN	C	0 - 1023	R	
Data Register	D	D	0 - 6143	R/W	
Link Register	W	W	0 - FFF	R/W	(*1)
Annunciator	WF	F	0 - 2032	R/W	(*2)
Special Internal Relay	WSM	SM	9000 - 9240	R	(*2)
Special Register	SD	SD	9000 - 9255	R	

(*1) Set this device using hexadecimal.

(*2) Set this device using a multiplier of 16.

2.5.3 MELSEC-AnN (CPU)

Bit Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Input Relay	X	X	0 - 7FF	R	(*1)
Output Relay	Y	Y	0 - 7FF	R/W	(*1)
Internal Relay	M	M	0 - 2047	R/W	
Link Relay	B	B	0 - 3FF	R/W	(*1)
Latch Relay	L	L	0 - 2047	R/W	
Timer (contact)	TS	T	0 - 255	R	
Timer (coil)	TC	T	0 - 255	R/W	
Counter (contact)	CS	C	0 - 255	R	
Counter (coil)	CC	C	0 - 255	R/W	
Special Internal Relay	SM	SM	9000 - 9255	R	
Annunciator	F	F	0 - 255	R/W	

Word Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Input Relay	WX	X	0 - 7F0	R	(*1) (*2)
Output Relay	WY	Y	0 - 7F0	R/W	(*1) (*2)
Internal Relay	WM	M	0 - 2032	R/W	(*2)
Link Relay	WB	B	0 - 3F0	R/W	(*1) (*2)
Latch Relay	WL	L	0 - 2032	R/W	(*2)
Timer (current value)	TN	T	0 - 255	R	
Counter (current value)	CN	C	0 - 255	R	
Data Register	D	D	0 - 1023	R/W	
Link Register	W	W	0 - 3FF	R/W	(*1)
Annunciator	WF	F	0 - 240	R/W	(*2)
Special Internal Relay	WSM	SM	9000 - 9240	R	(*2)
Special Register	SD	SD	9000 - 9255	R	

(*1) Set this device using hexadecimal.

(*2) Set this device using a multiplier of 16.

2.5.4 MELSEC-AnU (CPU)

Bit Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Input Relay	X	X	0 - 1FFF	R	(*1)
Output Relay	Y	Y	0 - 1FFF	R/W	(*1)
Internal Relay	M	M	0 - 8191	R/W	
Link Relay	B	B	0 - 1FFF	R/W	(*1)
Latch Relay	L	L	0 - 8191	R/W	
Timer (contact)	TS	T	0 - 2047	R	
Timer (coil)	TC	T	0 - 2047	R/W	
Counter (contact)	CS	C	0 - 1023	R	
Counter (coil)	CC	C	0 - 1023	R/W	
Special Internal Relay	SM	SM	9000 - 9255	R	
Annunciator	F	F	0 - 2047	R/W	

Word Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Input Relay	WX	X	0 - 1FF0	R	(*1) (*2)
Output Relay	WY	Y	0 - 1FF0	R/W	(*1) (*2)
Internal Relay	WM	M	0 - 8176	R/W	(*2)
Link Relay	WB	B	0 - 1FF0	R/W	(*1) (*2)
Latch Relay	WL	L	0 - 8176	R/W	(*2)
Timer (current value)	TN	T	0 - 2047	R	
Counter (current value)	CN	C	0 - 1023	R	
Data Register	D	D	0 - 8191	R/W	
Link Register	W	W	0 - 1FFF	R/W	(*1)
Annunciator	WF	F	0 - 2032	R/W	(*2)
Special Internal Relay	WSM	SM	9000 - 9240	R	(*2)
Special Register	SD	SD	9000 - 9255	R	

(*1) Set this device using hexadecimal.

(*2) Set this device using a multiplier of 16.

2.5.5 MELSEC-A1S/A2C (CPU)

Bit Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Input Relay	X	X	0 - 1FF	R	(*1)
Output Relay	Y	Y	0 - 1FF	R/W	(*1)
Internal Relay	M	M	0 - 2047	R/W	
Link Relay	B	B	0 - 3FF	R/W	(*1)
Latch Relay	L	L	0 - 2047	R/W	
Timer (contact)	TS	T	0 - 255	R	
Timer (coil)	TC	T	0 - 255	R/W	
Counter (contact)	CS	C	0 - 255	R	
Counter (coil)	CC	C	0 - 255	R/W	
Special Internal Relay	SM	SM	9000 - 9255	R	
Annunciator	F	F	0 - 255	R/W	

Word Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Input Relay	WX	X	0 - 1F0	R	(*1) (*2)
Output Relay	WY	Y	0 - 1F0	R/W	(*1) (*2)
Internal Relay	WM	M	0 - 2032	R/W	(*2)
Link Relay	WB	B	0 - 3F0	R/W	(*1) (*2)
Latch Relay	WL	L	0 - 2032	R/W	(*2)
Timer (current value)	TN	T	0 - 255	R	
Counter (current value)	CN	C	0 - 255	R	
Data Register	D	D	0 - 1023	R/W	
Link Register	W	W	0 - 3FF	R/W	(*1)
Annunciator	WF	F	0 - 240	R/W	(*2)
Special Internal Relay	WSM	SM	9000 - 9240	R	(*3)
Special Register	SD	SD	9000 - 9255	R	
File Register	R	R	0 - 8191	R/W	(*4)

(*1) Set this device using hexadecimal.
(*2) Set this device using a multiplier of 16.
(*3) This can only be used when the Link Unit is being used.

File Register is not available, if Memory Cassettes is used.

File Register is tested only MELSEC-A1S/A1SH/A1SJH/A2SH/A2C.
Don't use expect those CPU Unit.

In case of using File Register, must reset to MICRO/I if PLC parameter is changed.

2.5.6 MELSEC-Q/QnA(Link)

・ Bit Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Internal Relay	M	M	0 - 32767	R/W	
Input Relay	X	X	0 - 1FFF	R	(*1)
Output Relay	Y	Y	0 - 1FFF	R/W	(*1)
Link Special Relay	SB	SB	0 - 7FF	R/W	(*1)
Link Relay	B	B	0 - 7FFF	R/W	(*1)
Latch Relay	L	L	0 - 32767	R/W	
Timer (contact)	TS	T	0 - 8191	R	
Timer (coil)	TC	T	0 - 8191	R/W	
Counter (contact)	CS	C	0 - 8191	R	
Counter (coil)	CC	C	0 - 8191	R/W	
Special Relay	SM	SM	0 - 2047	R	
Annunciator	F	F	0 - 32767	R/W	
Retentive Timer (contact)	SS	ST	0 - 2047	R	
Retentive Timer (coil)	SC	ST	0 - 2047	R/W	
Step Relay	S	S	0 - 32767	R/W	
Edge Relay	V	V	0 - 32767	R/W	

· Word Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Input Relay	WX	X	0 - 1FF0	R	(*1) (*2)
Output Relay	WY	Y	0 - 1FF0	R/W	(*1) (*2)
Internal Relay	WM	M	0 - 32752	R/W	(*2)
Link Special Relay	WSB	SB	0 - 7F0	R/W	(*1) (*2)
Link Relay	WB	B	0 - 7FF0	R/W	(*1) (*2)
Latch Relay	WL	L	0 - 32752	R/W	(*2)
Timer (current value)	TN	T	0 - 8191	R	
Counter (current value)	CN	C	0 - 8191	R	
Data Register	D	D	0 - 25599	R/W	
Link Register	W	W	0 - 24FF	R/W	(*1)
File register	R	R	0 - 32767	R/W	
Annunciator	WF	F	0 - 32752	R/W	(*2)
Special Relay	WSM	SM	0 - 2032	R	(*2)
Special register	SD	SD	0 - 2047	R	
Edge Relay	WV	V	0 - 32752	R/W	(*2)
Step Relay	WS	S	0 - 32752	R/W	(*2)
Retentive Timer (current value)	SN	ST	0 - 2047	R/W	
Special Link Register	SW	SW	0 - 7FF	R/W	(*1)
Ext File Register	ZR	ZR	0 - FFFF	R/W	(*1)

(*1) Set this device using hexadecimal.

(*2) Set this device using a multiplier of 16.

2.5.7 MELSEC-Q (CPU)

・ Bit Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Internal Relay	M	M	0 - 32767	R/W	
Input Relay	X	X	0 - 1FFF	R	(*1)
Output Relay	Y	Y	0 - 1FFF	R/W	(*1)
Link Special Relay	SB	SB	0 - 7FF	R/W	(*1)
Link Relay	B	B	0 - 1FFF	R/W	(*1)
Latch Relay	L	L	0 - 32767	R/W	
Annunciator	F	F	0 - 32767	R/W	
Step Relay	S	S	0 - 8191	R/W	
Edge Relay	V	V	0 - 32767	R/W	
Timer (contact)	TS	T	0 - 23087	R	
Timer (coil)	TC	T	0 - 23087	R/W	
Counter (contact)	CS	C	0 - 23087	R	
Counter (coil)	CC	C	0 - 23087	R/W	
Retentive Timer (contact)	SS	ST	0 - 23087	R	
Retentive Timer (coil)	SC	ST	0 - 23087	R/W	
Special Relay	SM	SM	0 - 2047	R	

・ Word Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Input Relay	WX	X	0 - 1FF0	R	(*1) (*2)
Output Relay	WY	Y	0 - 1FF0	R/W	(*1) (*2)
Internal Relay	WM	M	0 - 32752	R/W	(*2)
Link Relay	WB	B	0 - 7FF0	R/W	(*1) (*2)
Latch Relay	WL	L	0 - 32752	R/W	(*2)
Annunciator	WF	F	0 - 32752	R/W	(*2)
Edge Relay	WV	V	0 - 32752	R/W	(*2)
Step Relay	WS	S	0 - 8176	R/W	(*2)
Timer (current value)	TN	T	0 - 23087	R	
Counter (current value)	CN	C	0 - 23087	R	
Retentive Timer (current value)	SN	ST	0 - 23087	R/W	
Data Register	D	D	0 - 25983	R/W	
Link Register	W	W	0 - 657F	R/W	
Special Relay	WSM	SM	0 - 2032	R	(*2)
Link Special Relay	WSB	SB	0 - 7F0	R/W	(*1) (*2)
Special Register	SD	SD	0 - 2047	R	
Special link Register	SW	SW	0 - 7FF	R/W	
File Register	R	R	0 - 32767	R/W	
Extend file Register	ZR	ZR	0 - 131072	R/W	

(*1) Set this device using hexadecimal.

(*2) Set this device using a multiplier of 16.

2.5.8 MELSEC-FX (CPU)

・ Bit Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Input Relay	X	X	0 - 337	R	(*1)
Output Relay	Y	Y	0 - 337	R/W	(*1)
Internal Relay	M	M	0 - 1535	R/W	
Timer (contact)	TS	T	0 - 255	R	
Counter (contact)	CS	C	S0 - 255	R	
State	S	S	0 - 999	R/W	

・ Word Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Input Relay	WX	X	0 - 320	R	(*1) (*2)
Output Relay	WY	Y	0 - 320	R/W	(*1) (*2)
Internal Relay	WM	M	0 - 1520	R/W	(*2)
Timer (current value)	TN	T	0 - 255	R	
Counter(current value)	CN	C	0 - 199	R	
32-Bit Counter (current value)	DCN	C	2000 - 2551	R	
Data Register	D	D	0 - 999	R/W	
State	WS	WS	0 - 976	R/W	(*2)

(*1) Set this device using octal.
(*2) Set this device using a multiplier of 16.
(*3) This device is a 32-bit device.

In the case of the FX2N and FX2NC Series, when the Host I/F is set to CPU Direct (Mitsubishi FX) using WindO/I-NV, there is a limit to the number of devices that can be used.

2.5.9 MELSEC-FX2N (CPU)

・ Bit Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Input Relay	X	X	0 - 337	R	(*1)
Output Relay	Y	Y	0 - 337	R/W	(*1)
Internal Relay	M	M	0 - 3071	R/W	
Timer (contact)	TS	T	0 - 255	R	
Counter (contact)	CS	C	0 - 255	R	
Special Int. Relay	SM	SM	8000 - 8255	R	
State	S	S	0 - 999	R/W	

・ Word Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Input Relay	WX	X	0 - 360	R	(*1) (*2)
Output Relay	WY	Y	0 - 360	R/W	(*1) (*2)
Internal Relay	WM	M	0 - 3056	R/W	(*2)
Timer (current value)	TN	T	0 - 255	R	
Counter(current value)	CN	C	0 - 199	R	
32-Bit Counter (current value)	DCN	C	2000 - 2551	R	
Data Register	D	D	0 - 7999	R/W	
State	WS	S	0 - 976	R/W	(*2)
Special Int. Relay	WSM	SM	8000 - 8240	R	
Special Register	SD	SD	8000 - 8255	R	

2.5.10 MELSEC-FX3UC (CPU)

・ Bit Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Input Relay	X	X	0 - 377	R	(*1)
Output Relay	Y	Y	0 - 377	R/W	(*1)
Internal Relay	M	M	0 - 7679	R/W	
Timer (contact)	TS	T	0 - 511	R	
Counter (contact)	CS	C	0 - 255	R	
Special Internal Relay	SM	SM	8000 - 8511	R	
State	S	S	0 - 4095	R/W	

・ Word Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Input Relay	WX	X	0 - 360	R	(*1) (*2)
Output Relay	WY	Y	0 - 360	R/W	(*1) (*2)
Internal Relay	WM	M	0 - 7664	R/W	(*2)
Timer (current value)	TN	T	0 - 511	R	
Counter (current value)	CN	C	0 - 199	R	
32-bit counter (current value)	DCN	C	2000 - 2551	R/W	(*3)
Data Register	D	D	0 - 7999	R/W	
State	WS	S	0 - 4080	R/W	(*2)
Special Internal Relay	WSM	SM	8000 - 8496	R	(*2)
Special Data Register	SD	SD	8000 - 8511	R	
Extended Register	R	R	0 - 32767	R/W	

(*1) Set this device using octal.
(*2) Set this device using a multiplier of 16.
(*3) This device is a 32-bit device.

2.5.11 MELSEC-Q/QnA（Ethernet）

・Bit Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Special Relay(bit)	SM	SM	000000 – 002047	R	dec
Input Relay(bit)	X	X	000000 – 001FFF	R	hex
Output Relay(bit)	Y	Y	000000 – 001FFF	R/W	hex
Internal Relay(bit)	M	M	000000 – 475135	R/W	dec
Latch Relay(bit)	L	L	000000 – 475135	R/W	dec
Annunciatior(bit)	F	F	000000 – 475135	R/W	dec
Edge Relay(bit)	V	V	000000 – 475135	R/W	dec
Link Relay(bit)	B	B	000000 – 073FFF	R/W	hex
Timer(contact)	TS	TS	000000 – 475135	R	dec
Timer(coil)	TC	TC	000000 – 475135	R/W	dec
Retentive Timer(contact)	SS	SS	000000 – 475135	R	dec
Retentive Timer(coil)	SC	SC	000000 – 475135	R/W	dec
Counter(contact))	CS	CS	000000 – 475135	R	dec
Counter(coil)	CC	CC	000000 – 475135	R/W	dec
Link Special Relay(bit)	SB	SB	000000 – 0007FF	R/W	dec
Step Relay(bit)	S	S	000000 – 008191	R/W	dec

・Word device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Special Register	SD	SD	000000～002047	R	dec
Data Register	D	D	000000～029695	R/W	dec
Link Register	W	W	000000～0073FF	R/W	hex
Timer(current value)	TN	TN	000000～029695	R	dec
Retentive Timer(current value)	SN	SN	000000～029695	R/W	dec
Counter(current value)	CN	CN	000000～029695	R	dec
Special Link Register	SW	SW	000000～0007FF	R/W	hex
File Register	R	R	000000～032767	R/W	dec
Extend file Register	ZR	ZR	000000～0FE7FF	R/W	hex
Special Relay(word)	WSM	SM	000000～002032	R	dec(*1)
Input Relay(word)	WX	X	000000～001FF0	R	hex(*1)
Output Relay(word)	WY	Y	000000～001FF0	R/W	hex(*1)
Internal Relay(word)	WM	M	000000～475120	R/W	dec(*1)
Latch Relay(word)	WL	L	000000～475120	R/W	dec(*1)
Annunciator(word)	WF	F	000000～475120	R/W	dec(*1)
Edge Relay(word)	WV	V	000000～475120	R/W	dec(*1)
Link Relay(word)	WB	B	000000～073FF0	R/W	hex(*1)
Link Special Relay(word)	WSB	SB	000000～0007F0	R/W	hex(*1)
Step Relay(ワード)	WS	S	000000～008176	R/W	dec(*1)

(*1) Set this device using a multiplier of 16.

3 Omron

3.1 Connection Table

3.1.1 Compatible PLCs

Manufacturer	Series Name	System (CPU unit)	Link Unit	WindO/I-NV2 Setting Name		
				Interface	Flow Control	Host I/F Driver
Omron	SYSMAC-C	C500, C500F, C1000H, C2000, C2000H	C120-LK201-V1	RS-232C (Connection Diagram 3-1)	ER control	SYSMAC C Series
			C120-LK202-V1	RS-485 (422)-4 (Connection Diagram 3-2)		
			C500-LK201-V1	RS-232C (Connection Diagram 3-1)		
				RS-485 (422)-4 (Connection Diagram 3-2)		
			C500-LK203	RS-232C (Connection Diagram 3-1)		
				RS-485 (422)-4 (Connection Diagram 3-3)		
		C1000HF	C500-LK203	RS-232C (Connection Diagram 3-1)		
				RS-485 (422)-4 (Connection Diagram 3-3)		
		C200HS	C200H-LK201	RS-232C (Connection Diagram 3-1)		
			C200H-LK202	RS-485 (422)-4 (Connection Diagram 3-2)		

* We tested with the PLC of underline part.

Manufacturer	Series Name	System (CPU unit)	Link Unit	WindO/I-NV2 Setting Name		
				Interface	Flow Control	Host I/F Driver
Omron	SYSMAC-C	C200HE, C200HG, C200HX	C200H-LK201	RS-232C (Connection Diagram 3-1)		
			C200H-LK202	RS-485 (422)-4 (Connection Diagram 3-2)		
			C200HW-COM02/COM04 /COM05/COM06	RS-232C (Connection Diagram 3-6)		
			C200HW-COM03/COM06	RS-485 (422)-4 (Connection Diagram 3-7)		
		C120,C120F	C120-LK201-V1	RS-232C (Connection Diagram 3-1)		
			C120-LK202-V1	RS-485 (422)-4 (Connection Diagram 3-2)		
		CQM1H, C200HS -CPU21/23/ 31/33	Not required (connects to CPU unit)	RS-232C (Connection Diagram 3-5)		
		C200HE-CPU42 C200HG-CPU43/63 C200HX-CPU44/64	Not required (connects to CPU unit)	RS-232C (Connection Diagram 3-6)		
		CPM1, CPM1A, CPM2A	CPM1-CIF01	RS-232C (Connection Diagram 3-5)		
			CPM1-CIF11	RS-485 (422)-4 (Connection Diagram 3-8)		
		CPM2A	Not required (connects to CPU unit)	RS-232C (Connection Diagram 3-5)		

* We tested with the PLC of underline part.

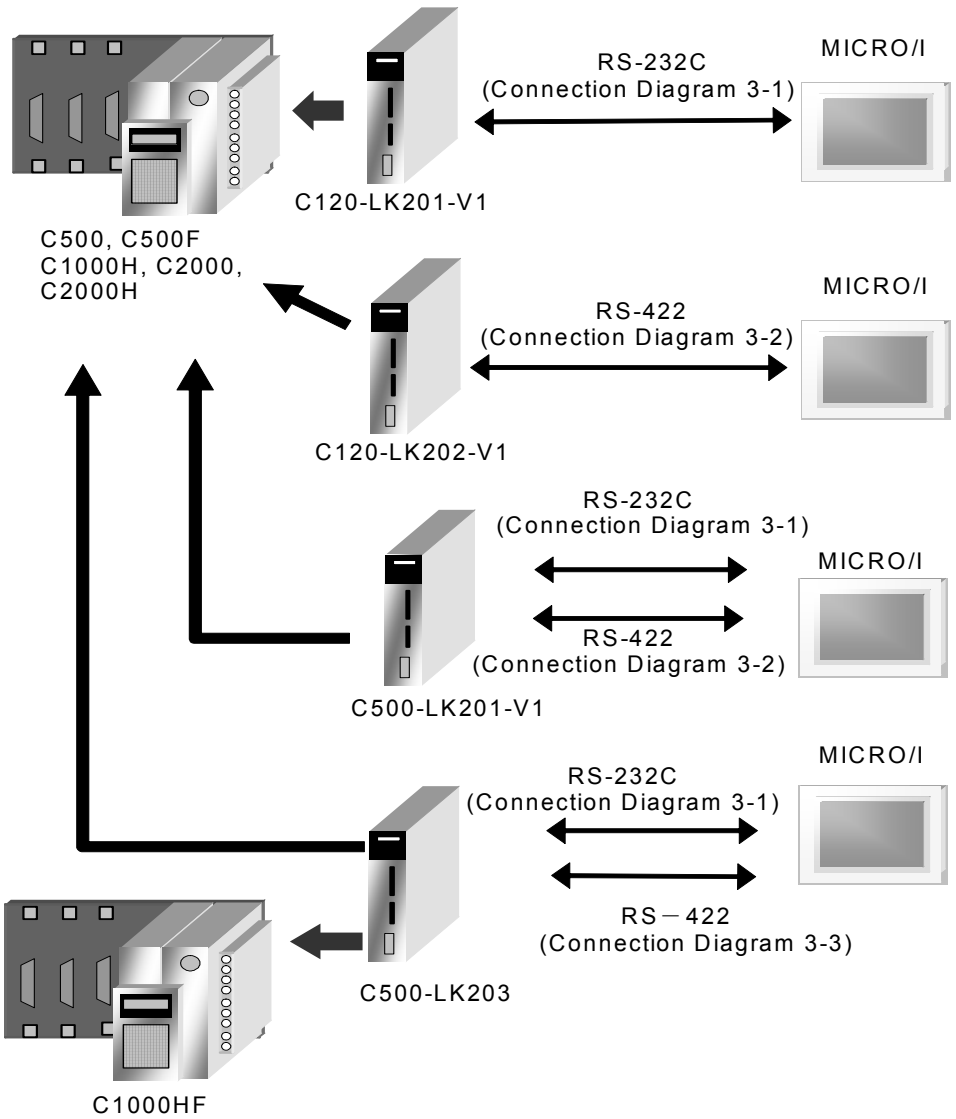
Manufacturer	Series Name	System (CPU unit)	Link Unit	WindO/I-NV2 Setting Name		
				Interface	Flow Control	Host I/F Driver
Omron	CS1Series	CS1G,CS1H	Not required (connects to CPU unit)	RS-232C (Connection Diagram 3-6)	ER control	SYSMAC CS1 Series
		CS1G,CS1H	CS1W-SCB41 (port1)	RS-232C (Connection Diagram 3-6)		
			CS1W-SCB41 (port2)	RS-485 (422)-4 (Connection Diagram 3-7)		
	CJ1 Series	CJ1M, CJ1H,CJ1G	Not required (connects to CPU unit)	RS-232C (Connection Diagram 3-6)		
	CP1 Series	CP1H	CP1W-CIF01	RS-232C (Connection Diagram 3-6)		
			CP1W-CIF11	RS-485 (422)-4 (Connection Diagram 3-7)		

* We tested with the PLC of underline part.

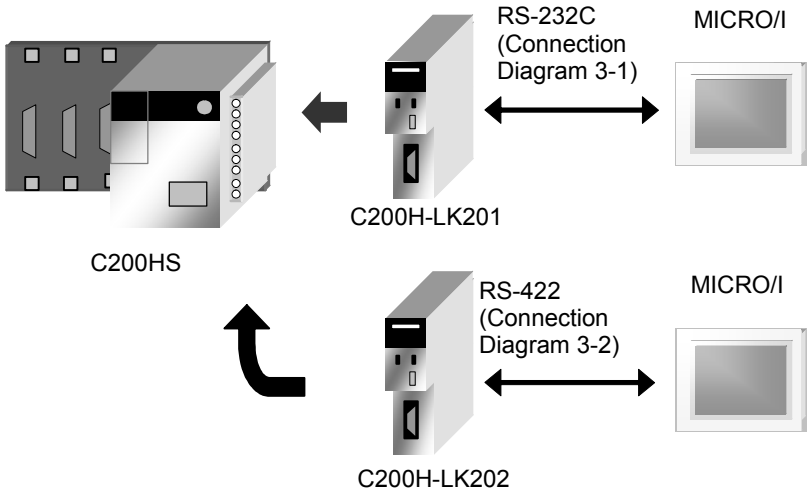
3.2 System Configuration

This is the system configuration for connection of Omron PLCs to the MICRO/I

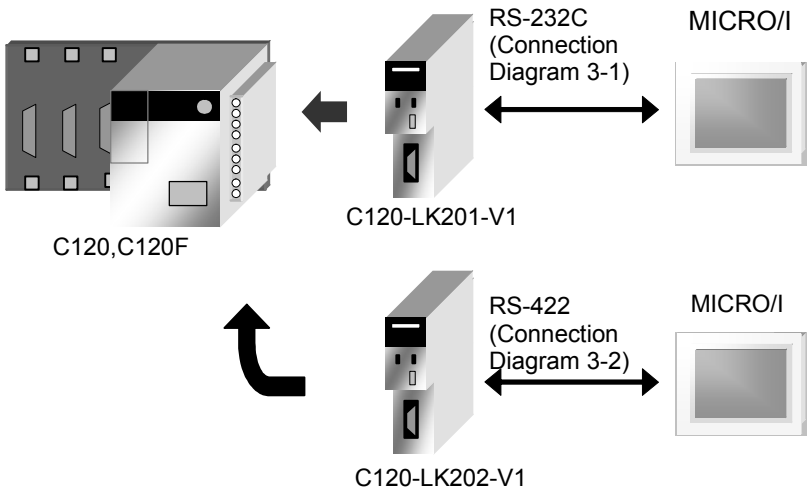
3.2.1 SYSMAC-C Series (using the PLC Link Unit)



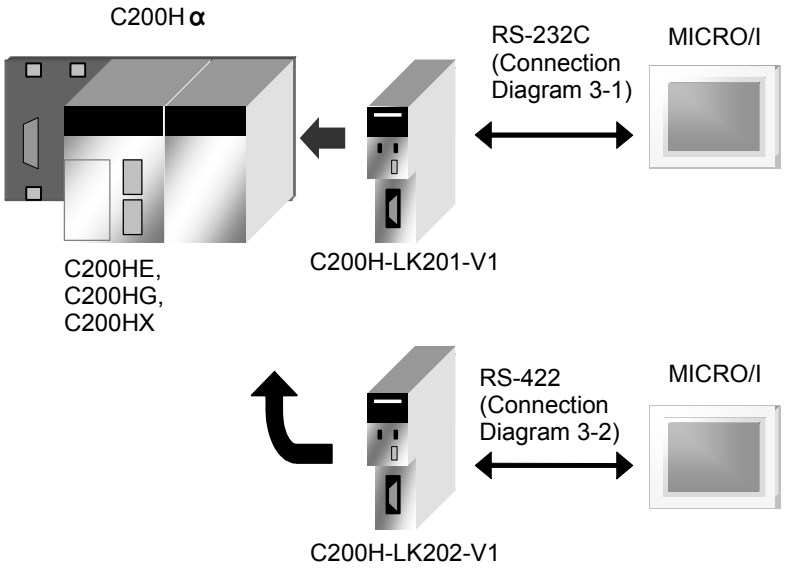
In case of HG2F/3F/4F a connection cable is available for Connection Diagram 3-1 (part number: HG9Z-3C135).
In case of HG1F a connection cable is available for Connection Diagram 3-1 (part number: HG9Z-XC155).



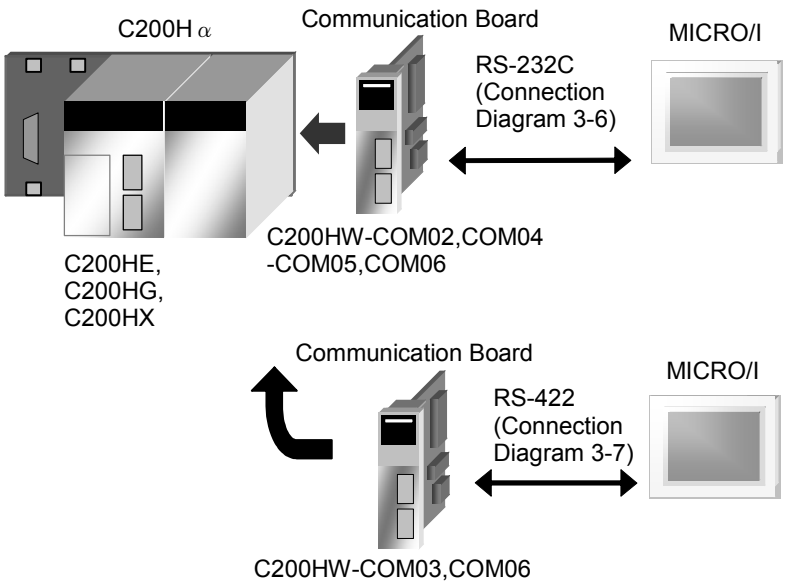
In case of HG2F/3F/4F a connection cable is available for Connection Diagram 3-1 (part number: HG9Z-3C135).
In case of HG1F a connection cable is available for Connection Diagram 3-1 (part number: HG9Z-XC155)



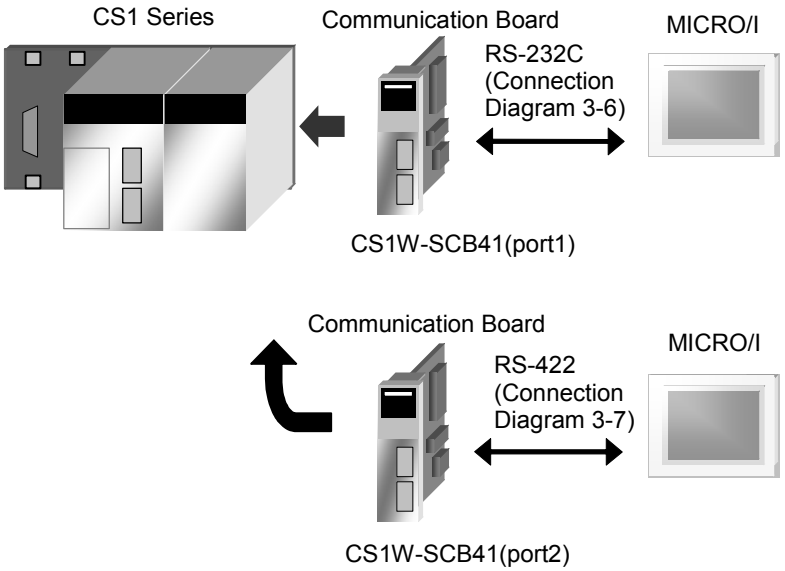
In case of HG2F/3F/4F a connection cable is available for Connection Diagram 3-1 (part number: HG9Z-3C135).
In case of HG1F a connection cable is available for Connection Diagram 3-1 (part number: HG9Z-XC155)



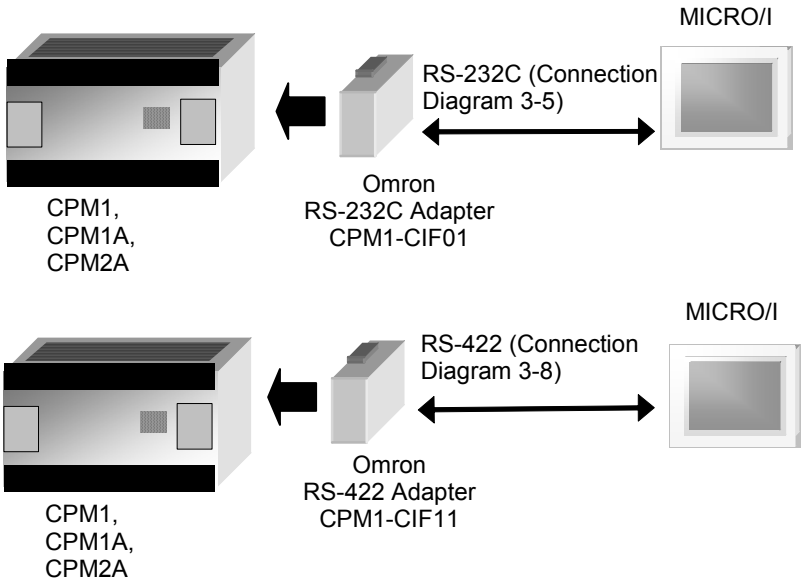
In case of HG2F/3F/4F a connection cable is available for Connection Diagram 3-1 (part number: HG9Z-3C135).
In case of HG1F a connection cable is available for Connection Diagram 3-1 (part number: HG9Z-XC155).



You can use the same cable for Connection Diagram 3-6 as for Connection Diagram 3-5.

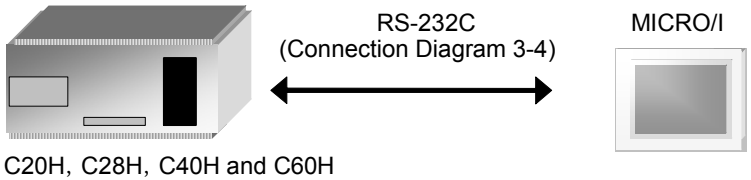


You can use the same cable for Connection Diagram 3-6 as for Connection Diagram 3-5.

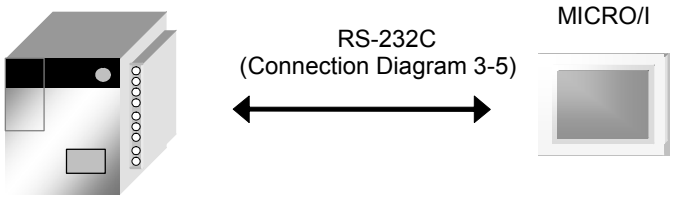


In case of HG2F/3F/4F a connection cable is available for Connection Diagram 3-5 (part number: HG9Z-3C155).
In case of HG1F a connection cable is available for Connection Diagram 3-5 (part number: HG9Z-XC213).

3.2.2 SYSMAC-C Series (using the Link I/F on the CPU Unit)

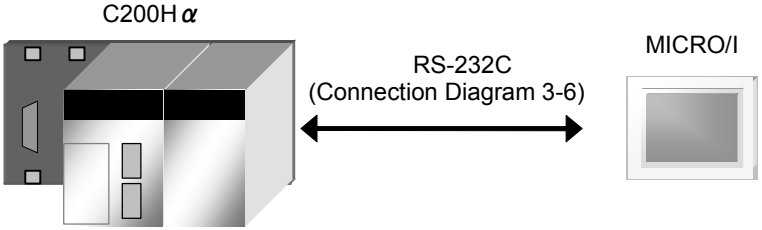


C20H, C28H, C40H and C60H



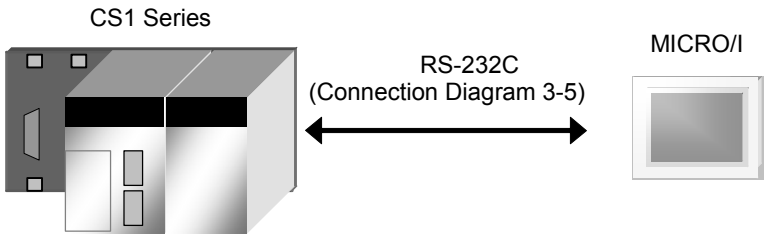
C200HS-CPU21/23/31/33
CQM1H

In case of HG2F/3F/4F a connection cable is available for Connection Diagram 3-5 (part number: HG9Z-3C155).
In case of HG1F a connection cable is available for Connection Diagram 3-5 (part number: HG9Z-XC213).

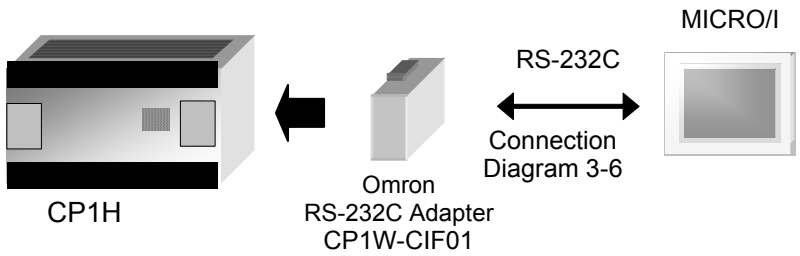


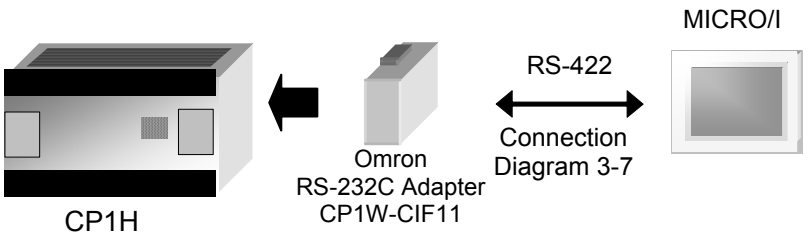
C200HE-CPU42
C200HG-CPU43/63
C200HX-CPU44/64

You can use the same cable for Connection Diagram 3-6 as for Connection Diagram 3-5.



In case of HG2F/3F/4F a connection cable is available for Connection Diagram 3-5 (part number: HG9Z-3C155).
In case of HG1F a connection cable is available for Connection Diagram 3-5 (part number: HG9Z-XC213).





You can use the same cable for Connection Diagram 3-6 as for Connection Diagram 3-5.

3.3 Connection Diagram

For details regarding wiring, refer to "3 Important Points Regarding About Wiring" in Chapter 1.

Connection Diagram 3-1: RS-232C Link Unit to MICRO/I

PLC(RS-232C)	
Pin No.	Name
1	FG
2	SD
3	RD
4	RS
5	CS
6	
7	SG
8	
20	ER

Shield Wire

HG1F/2F/2S/3F/4F(RS-232C)			
Name	Pin No.		
	HG1F Connector	HG2F/ 3F/4F	HG2S
FG	1	1	1
SD	2	2	30
RD	3	3	32
RS	9	4	34
CS	6	5	36
NC	-	6	-
SG	7	7	29
NC	-	8	-
ER	-	20	-

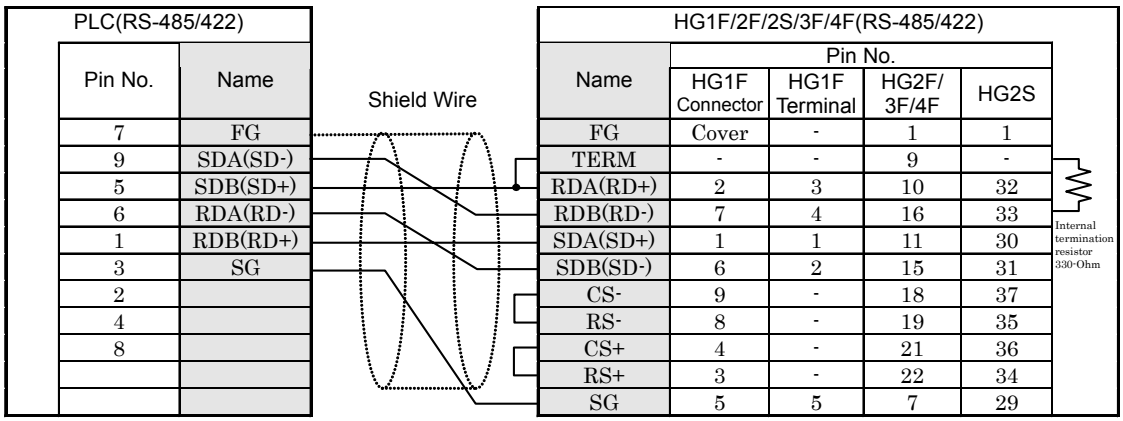
D-sub, 25P connector socket type

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

In case of HG2F/3F/4Fa connection cable is available (part number: HG9Z-3C135).
The connection diagram 3-1 is not same as HG9Z-3C135. But both diagrams are available.
Refer to the Hardware Manual about the connection diagram of HG9Z-3C135.

In case of HG1F a connection cable is available (part number: HG9Z-XC155).
The connection diagram 3-1 is not same as HG9Z-XC155. But both diagrams are available.
Refer to the Hardware Manual about the connection diagram of HG9Z-XC155.

Connection Diagram 3-2: RS-422 Link unit to MICRO/I



D-sub, 9P connector socket type

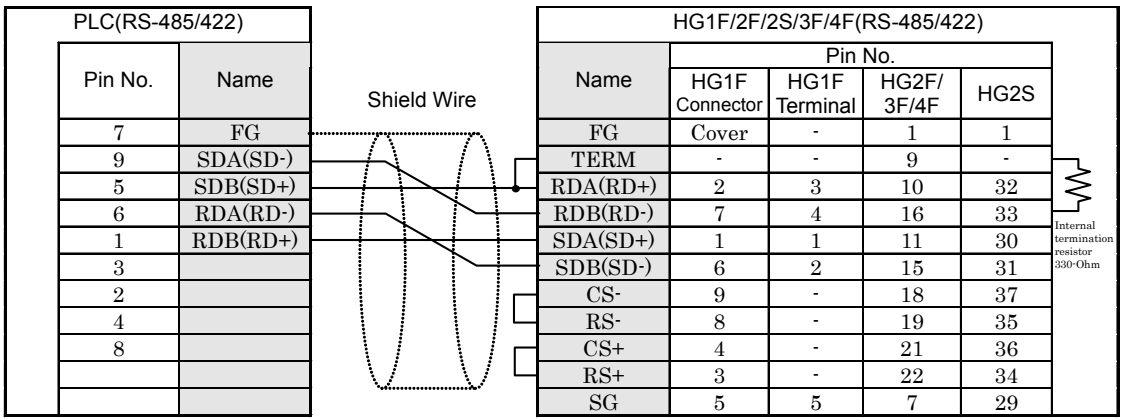
D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

- We recommend that you switch on the termination resistor on the PLC Link Unit side for long-distance transmission.

- There is no pin No. corresponding to TERM on the HG1F/HG2S. When inserting a termination resistor, use a communication switch. For the setting of the switch, refer to "3 Important Points Regarding Wiring" in Chapter 1.

WARNING When you use the Terminal Block type of HG1F, make sure to configure the Hardware Flow control to NONE because the HG1F doesn't have control lines.

Connection Diagram 3-3: RS-422 Link unit to MICRO/I



D-sub, 9P connector socket type

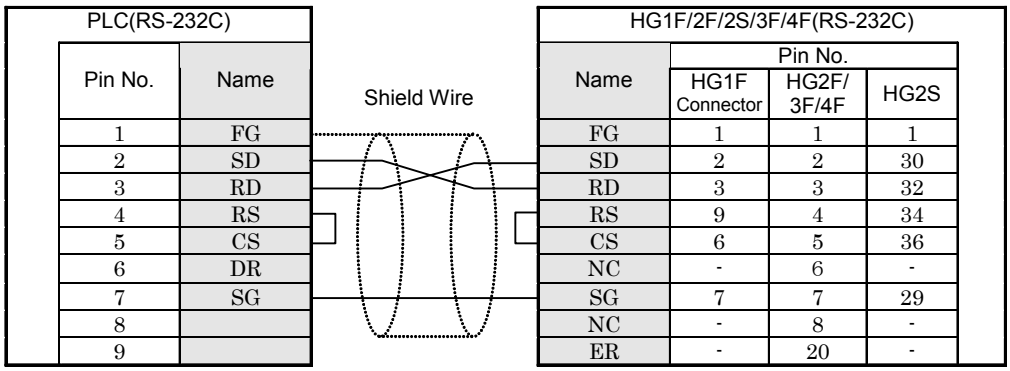
D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

- We recommend that you switch on the termination resistor on the PLC Link Unit side for long-distance transmission.

- There is no pin No. corresponding to TERM on the HG1F/HG2S. When inserting a termination resistor, use a communication switch. For the setting of the switch, refer to "3 Important Points Regarding Wiring" in Chapter 1..

WARNING When you use the Terminal Block type of HG1F, make sure to configure the Hardware Flow control to NONE because the HG1F doesn't have control lines.

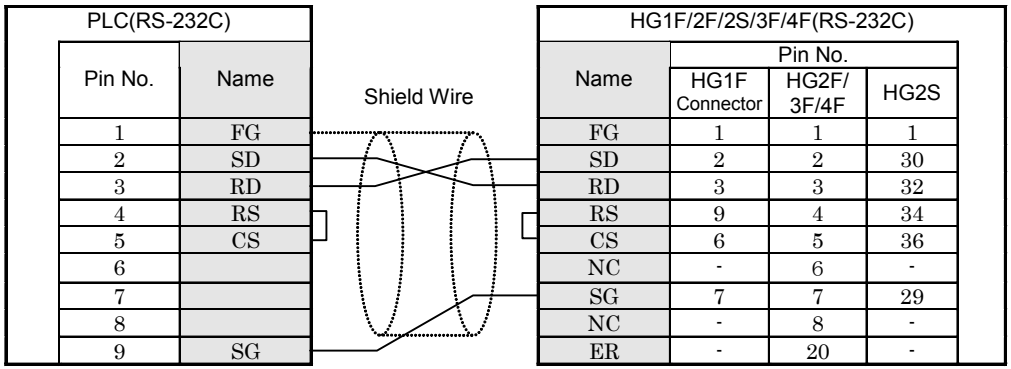
Connection Diagram 3-4: CPU Unit Link I/F to MICRO/I



D-sub, 9P connector socket type
(unit side)

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

Connection Diagram 3-5: CPU Unit Link I/F to MICRO/I



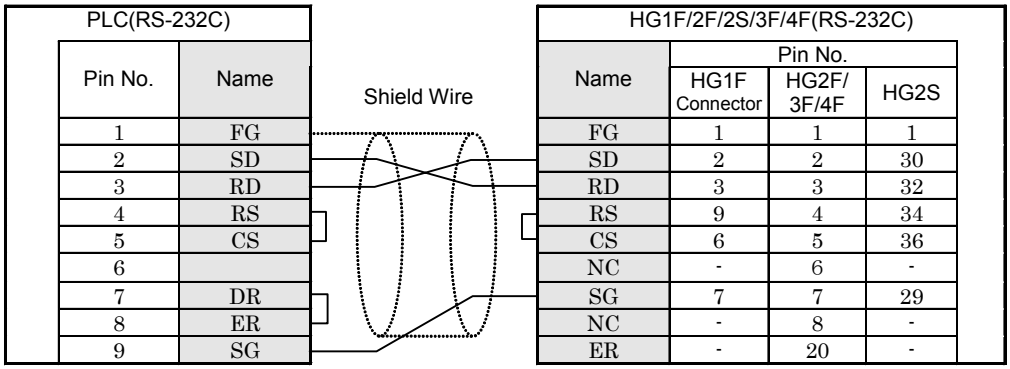
D-sub, 9P connector socket type

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

In case of HG2F/3F/4Fa connection cable is available (part number: HG9Z-3C155).
The connection diagram 3-5 is not same as HG9Z-3C155. But both diagrams are available.
Refer to the Hardware Manual about the connection diagram of HG9Z-3C155.

In case of HG1F a connection cable is available (part number: HG9Z-XC213).
The connection diagram 3-5 is not same as HG9Z-XC213. But both diagrams are available.
Refer to the Hardware Manual about the connection diagram of HG9Z-XC213.

Connection Diagram 3-6: PLC (RS-232C) I/F to MICRO/I



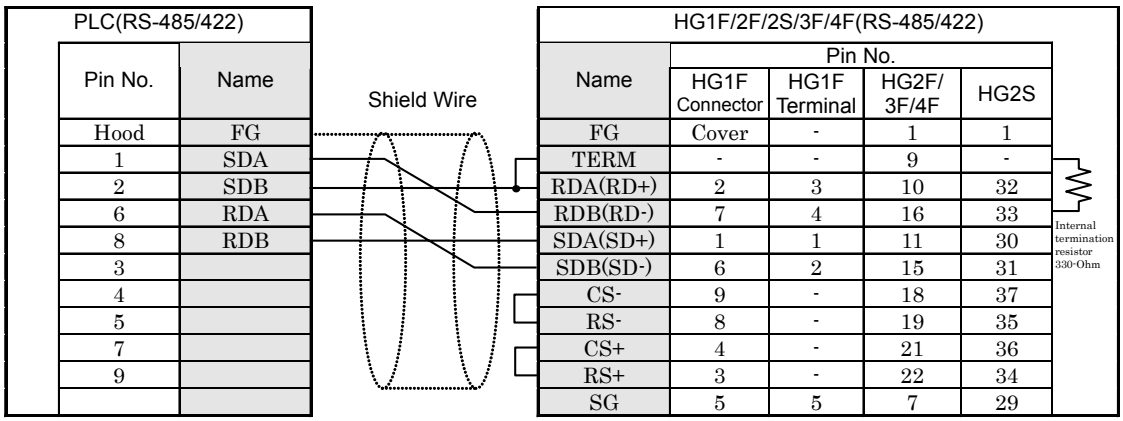
D-sub, 9P connector socket type

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

In case of HG2F/3F/4Fa connection cable is available (part number: HG9Z-3C155).
The connection diagram 3-6 is not same as HG9Z-3C155. But both diagrams are available.
Refer to the Hardware Manual about the connection diagram of HG9Z-3C155.

In case of HG1F a connection cable is available (part number: HG9Z-XC213).
The connection diagram 3-5 is not same as HG9Z-XC213. But both diagrams are available.
Refer to the Hardware Manual about the connection diagram of HG9Z-XC213.

Connection Diagram 3-7: RS-422 Communication Board to MICRO/I



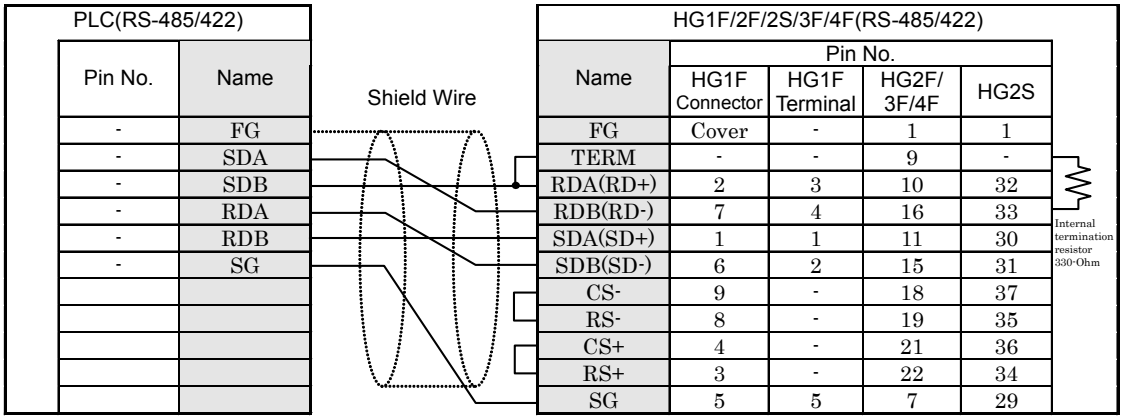
D-sub, 9P connector socket type

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

- We recommend that you switch on the termination resistor on the PLC Link Unit side for long-distance transmission.
- There is no pin No. corresponding to TERM on the HG1F/HG2S. When inserting a termination resistor, use a communication switch. For the setting of the switch, refer to "3 Important Points Regarding Wiring" in Chapter 1.

WARNING When you use the Terminal Block type of HG1F, make sure to configure the Hardware Flow control to NONE because the HG1F doesn't have control lines.

Connection Diagram 3-8: RS-422 Adaptor to MICRO/I



Screw terminal block

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

- We recommend that you switch on the termination resistor on the PLC Link Unit side for long-distance -distance transmission.

- There is no pin No. corresponding to TERM on the HG1F/HG2S. When inserting a termination resistor, use a communication switch. For the setting of the switch, refer to "3 Important Points Regarding Wiring" in Chapter 1.

WARNING When you use the Terminal Block type of HG1F, make sure to configure the Hardware Flow control to NONE because the HG1F doesn't have control lines.

3.4 Environment Settings

3.4.1 PLC Link Unit Settings

Perform the settings using the rotary switches and DIP switches on the Link Unit.

Item		Setting	
		RS-232C	RS-422
Transmission Control Protocol		1:N	
Command Level		Levels 1, 2, and 3 are valid	
Baud Rate	Use the same settings as for the MICRO/I.	1200, 2400, 4800, 9600 or 19200	
Transmission Code		7 or 8 bit ASCII	
Stop Bits		1 or 2	
Unit No.		0 to 31(DEC)	
Parity		Even/Odd	
CTS Switch		0V (always on)	
Synchronization Switch		Internal	
Termination Resistor		----------	Yes

Refer to the Link Unit manual for details.

Select using Register Command or not in “Project Setting”-“Host I/F Driver”.

3.4.2 CPU Unit RS-232C Link I/F Settings

Write the RS-232C I/F setting items for the System Settings Area using a peripheral tool (such as Procon).

System Settings Area		Item	Setting
C20H/ 28H/40H/60H	CQM1H C200HS/C200HE/C200HG/ C200HX		
DM0920	DM6645	Standard/Individual Setting (*1)	Same setting as the MICRO/I
		Mode	PLC Link Mode
DM0921	DM6646	Communication parameters for when the previous item is set to Individual.	Use the same settings as for the MICRO/I.
DM0922	DM6647	Transmission Delay	0 msec
		RS/CS presence	None
DM0923	DM6648	Unit No.	Same setting as the MICRO/I

(*1) Standard settings
Baud rate: 9600 bps
Data Bits: 7 bits
Stop Bits: 2 bits
Parity: Even

Refer to the PLC manual for details.

For CQM 1 and C200HS, set the switch number 5 on the CPU Unit setting switch to OFF.

3.4.3 CPU Unit RS-232C Link I/F Settings (CS1 Series)

Write the RS-232C I/F setting items for the System Settings Area using a peripheral tool (such as Procon).

Channel	Item	Setting
160	Optional/Initial Setting (*1)	Set to 1 for Optional Setting
	Serial Communication mode	Set to PLC Link
	Data Bits	Use the same settings as for the MICRO/I.
	Stop Bits	
	Parity	
161	Port Communication Speed	Use the same settings as for the MICRO/I.
162	In the case of No Protocol Mode	Do not set
163	Unit No.	Set to the same as the MICRO/I PLC Link Station Number.
164	In the case of No Protocol Mode	Do not set

(*1) Initial settings
Baud rate: 9600 bps
Data Bits: 7 bits
Stop Bits: 2 bits
Parity: Even

Refer to the PLC manual for details.

For the CS1 Series, set switch number 5 on the CPU Unit setting switch to OFF to enable you to make your own communication settings.

3.4.4 C200Hα (Communication Board) Settings

Write the Communication Board setting items for the System Settings Area using a peripheral tool (such as Procon).

System Settings Area		Item	Setting
Port A	Port B		
DM6555	DM6550	Standard Setting/Individual Setting (*1)	Same setting as the MICRO/I
		Mode	PLC Link Mode
DM6556	DM6551	Communication parameters for when the previous item is set to Individual.	Same setting as the MICRO/I
DM6557	DM6552	Transmission Delay	0 msec
DM6558	DM6553	Unit No.	Same setting as the MICRO/I

(*1) Standard settings
Baud rate: 9600bps
Data Bits: 7 bits
Stop Bits: 2 bits
Parity: Even

Set DIP switch SW1 to the 4 side (4 line).

Set DIP switch SW2 to ON to turn the termination resistor setting ON.
Refer to the Communication Board manual for details.

3.4.5 CS1 Series (Communication Board) Settings

Write the Communication Board setting items for the System Settings Area using a peripheral tool (such as Procon).

System Settings Area		Item	Setting
Port 1	Port 2		
DM32000	DM32010	Optional/Initial Setting (*1)	Set to 1 for Optional Setting
		Serial Communication mode	Set to PLC Link
		Data Bits	Use the same settings as for the MICRO/I.
		Stop Bits	
		Parity	
DM32001	DM32011	Port Communication Speed	Use the same settings as for the MICRO/I.
DM32002	DM32012	Transmission Delay setting	0 for default (0mses)
		Delay time setting	
DM32003	DM32013	CTS control	Set to 0 for no
		Unit No.	Use the same settings as for the MICRO/I.

(*1) Initial settings
Baud rate: 9600bps
Data Bits: 7 bits
Stop Bits: 2 bits
Parity: Even

Set the DIP switch 4 line.

Set the DIP switch to ON to turn the termination resistor setting ON.

3.4.6 CPU Direct Settings (CPM1/CPM1A/CPM2A)

Connect via CPM-CIF01 (RS232C)/CPM 1-CIF11 (RS422).

Item	Setting
	RS-232C
Baud Rate	9600 bps
Data Bits	7 bits
Stop Bits	2 bits
Parity	Even

The communication settings are fixed.

Refer to the PLC manual for details.

3.5 Usable Devices

3.5.1 SYSMAC-C (when the PLC type setting is SYSMAC C Series)

· Bit Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Input/Output Internal Relay	R	CIO	0 - 99915, 120000 - 614315	R/W	
Link Relay	LR	LR	0 - 19915	R/W	
Holding Relay	HR	HR	0 - 51115	R/W	
Auxiliary Memory Relay	AR	AR	0 - 95915	R	
Timer (contact)	TIMC	TC	0 - 2047	R	
Counter (contact)	CNTC	TC	0 - 4095	R	

· Word Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Input/Output Internal Relay	WR	CIO	0 - 999, 1200 - 6143	R/W	
Link Relay	WLR	LR	0 - 199	R/W	
Holding Relay	WHR	HR	0 - 511	R/W	
Auxiliary Memory Relay	WAR	AR	0 - 959	R	
Timer (current value)	TIMN	TC	0 - 2047	R	
Counter (current value)	CNTN	TC	0 - 4095	R	
Data Memory	DM	DM	0 - 9999	R/W	

WARNING

- Important points to note regarding setting performing Bit Write operations

- With a Bit Write operation, the word data is first read from the PLC, and a logic operation (AND or OR) is performed on the relevant bit before writing it to the PLC to ensure that the values of other bits in the same channel are preserved. However, be certain that the PLC does not modify the data in the channel during the time that the MICRO/I is writing the data.

3.5.2 CS1 Series (when the PLC type setting is SYSMAC CS1 Series)

・ Bit Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Core I/O	CIO	CIO	0 - 614315	R/W	
Work Area	WR	WR	0 - 51115	R/W	
Holding Bit	HR	HR	0 - 51115	R/W	
Auxiliary Bit	AR	AR	0 - 95915	R	
Timer (Contact)	TIMC	TIMC	0 - 4095	R	
Counter (Contact)	CNTC	CNTC	0 - 4095	R	
Task Area	TK	TK	0 - 31	R	

· Word Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Core I/O	WCIO	CIO	0 - 6143	R/W	
Work Area	WWR	WR	0 - 511	R/W	
Holding Bit	WHR	HR	0 - 511	R/W	
Auxiliary Bit	WAR	AR	0 - 959	R	
Timer (Present value)	TIMN	TIM	0 - 4095	R	
Counter (Present value)	CNTN	CNT	0 - 4095	R	
Data Memory	DM	DM	0 - 32767	R/W	
Expansion Data Memory (Bank 0)	EM0	EM0	0 - 32767	R/W	
Expansion Data Memory (Bank 1)	EM1	EM1	0 - 32767	R/W	
Expansion Data Memory (Bank 2)	EM2	EM2	0 - 32767	R/W	
Expansion Data Memory (Bank 3)	EM3	EM3	0 - 32767	R/W	
Expansion Data Memory (Bank 4)	EM4	EM4	0 - 32767	R/W	
Expansion Data Memory (Bank 5)	EM5	EM5	0 - 32767	R/W	
Expansion Data Memory (Bank 6)	EM6	EM6	0 - 32767	R/W	
Expansion Data Memory (Bank 7)	EM7	EM7	0 – 32767	R/W	
Expansion Data Memory (Bank 8)	EM8	EM8	0 – 32767	R/W	
Expansion Data Memory (Bank 9)	EM9	EM9	0 – 32767	R/W	
Expansion Data Memory (Bank A)	EMA	EMA	0 – 32767	R/W	
Expansion Data Memory (Bank B)	EMB	EMB	0 - 32767	R/W	
Expansion Data Memory (Bank C)	EMC	EMC	0 - 32767	R/W	
Task Area (Status)	TKS	TKS	0 - 31	R	
Index Register	IR	IR	0 - 15	R	
Data Register	DR	DR	0 - 15	R	

- The Task Flag (bit) is 1 (ON) when the cycle execution task is in the executable state, and 0 (OFF when it is in the unexecuted or standby states. The Task Flag (Status) indicates the following states.

  0: Never started

  1: In the stopped state after starting once

  2: Starting

4 Allen-Bradley PLCs

4.1 Connection Table

4.1.1 Compatible PLCs

Manufacturer	Series Name	System (CPU unit)	Link unit	WindO/I-NV2 Setting Name			
				Interface	Flow Control	Host I/F Driver	
Allen-Bradley	PLC-5	All PLC-5 models that can be connected to 1770-KF2	1770-KF2	RS-232C (Connection Diagram 4-2)	ER control	PLC-5 (Half Duplex)	
				RS-485 (422)-4 (Connection Diagram 4-3)			
		All PLC-5 models	Not required (connects to CPU unit)	RS-232C (Connection Diagram4-2)			
				RS-485 (422)-4 (Connection Diagram 4-4)			
	SLC 500	SLC5/03 SLC5/04 SLC5/05	Not required (connects to CPU unit)	RS-232C (Connection Diagram 4-1)		MicroLogix/SLC 500 Full Duplex)	SLC500 (Half Duplex)
	MicroLogix	MicroLogix1000 MicroLogix1200	Not required (connects to CPU unit)	RS-232C (Connection Diagram 4-5)			
		MicroLogix1100	Not required (connects to CPU unit)	RS-232C (Connection Diagram 4-8)			
		MicroLogix1500	Not required (connects to Mini Din connector on CPU unit)	RS-232C (Connection Diagram 4-5)			
			Not required (connects to D-sub connector on CPU unit)	RS-232C (Connection Diagram 4-6)			

- We tested with the PLC of underline part.

If your existing project is using "SLC500" with Ver.2.30 or earlier, "SLC500 (Half Duplex)" will appear to the Protocol setting with Ver.2.40 or later.

Selecting DirectLogic Logix DF1(Full Duplex) or DirectLogic(Ethernet) for the Host I/F Driver allows the user to use the 1: N Communication function.

・1: N Communication function (→ Chapter 6 1: N Communication Function)

Manufacturer	Series Name	System (CPU unit)	Link unit	WindO/I-NV2 Setting Name		
				Interface	Flow Control	Host I/F Driver
Allen-Bradley	ControlLogix	ControlLogix 5550 ControlLogix 5555	Not required (connects to CPU unit)	RS-232C (Connection Diagram 4-7)	None	Logix DF1(Full Duplex)
	CompactLogix	1768 CompactLogix 1769 CompactLogix	Not required (connects to CPU unit)	RS-232C (Connection Diagram 4-7)		
	FlexLogix	1794-L33 1794-L34	Not required (connects to CPU unit)	RS-232C (Connection Diagram 4-7)		

- We tested with the PLC of underline part.

Manufacturer	Series Name	System (CPU unit)	Link unit	WindO/I-NV2 Setting Name	
				Interface	Host I/F Driver
Allen-Bradley	ControlLogix	ControlLogix5550 ControlLogix5555	1756-ENBT	Ethernet	Ethernet/IP
	CompactLogix	1769 CompactLogix	Not required (connects to CPU unit)		
	PLC-5	PLC-5	1785-ENET		
		PLC-5E	Not required (connects to CPU unit)		
	SLC 500	SLC5/05	Not required (connects to CPU unit)		
		SLC5/03 SLC5/04 SLC5/05	1761-NET-ENI		
	MicroLogix	MicroLogix1000 MicroLogix1100(*) MicroLogix1200 MicroLogix1500	1761-NET-ENI		
		MicroLogix1100	Not required (connects to Built-in Ethernet port on CPU unit)(*)		

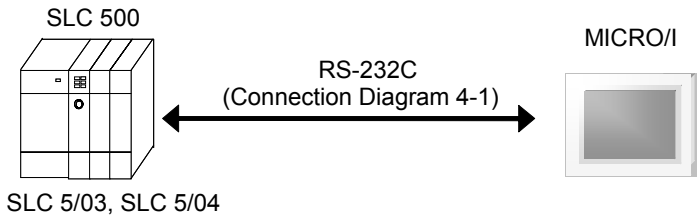
- We tested with the PLC of underline part.

(*)To connect the Ethernet port on MicroLogix1100, check the firmware version. MICRO/I supports version 4 or later. (The latest firmware is on the Allen-Bradley web site.)

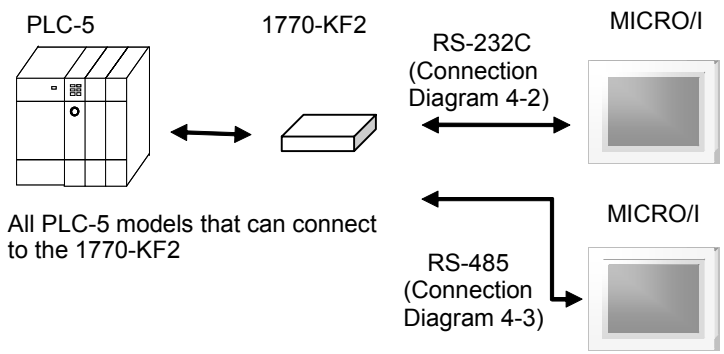
4.2 System Configuration

This is the system configuration to connect Allen-Bradley PLCs to MICRO/I.

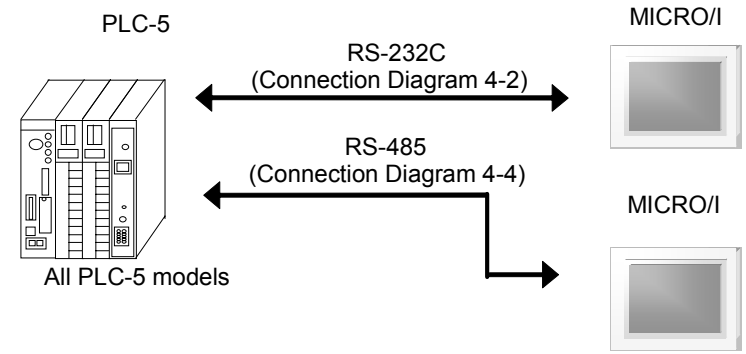
4.2.1 SLC 500 (connected to the CPU Channel 0 serial port)



4.2.2 PLC-5 (Interface Module)

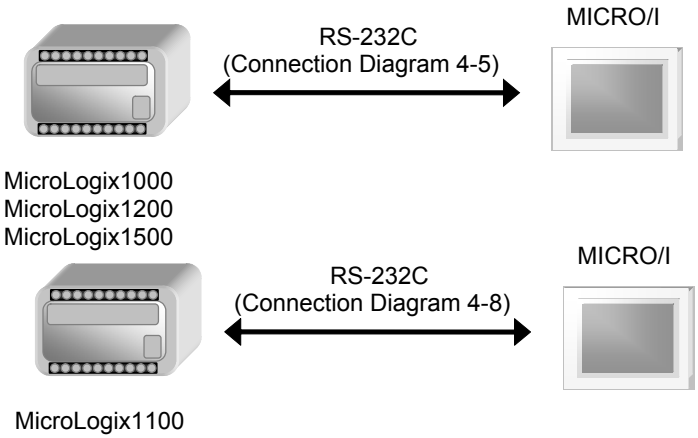


4.2.3 PLC-5 (CPU Direct)

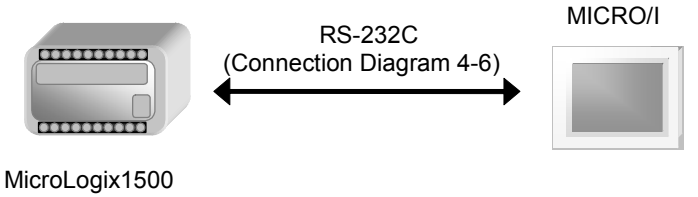


Connect to the CPU Channel 0 serial port.

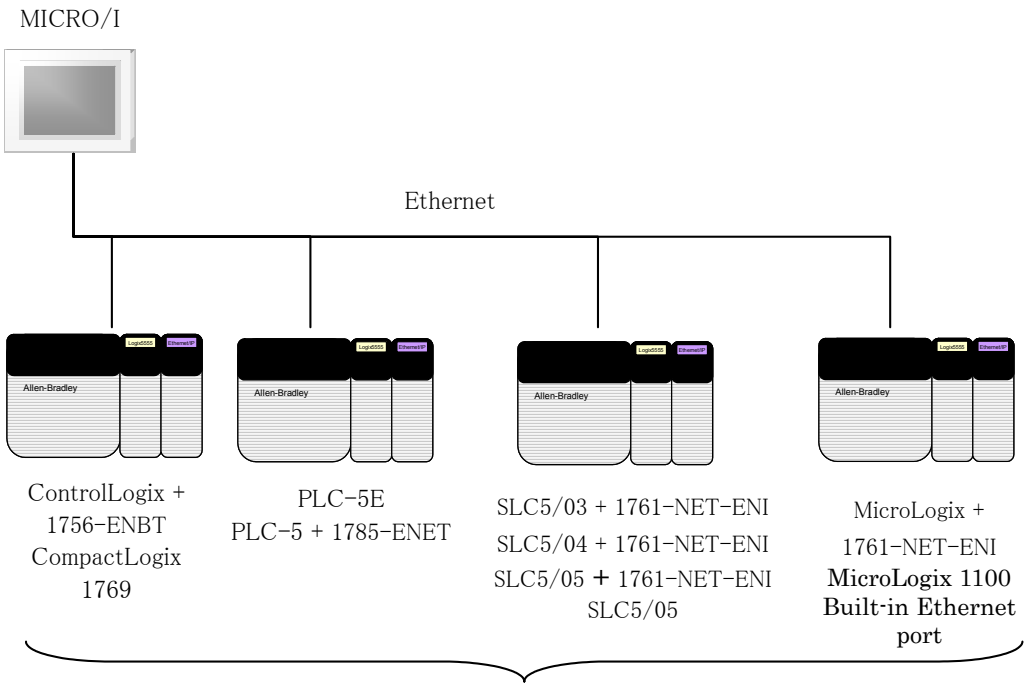
4.2.4 MicroLogix 1000/1100/1200/1500 (Mini Din connector on CPU Unit)



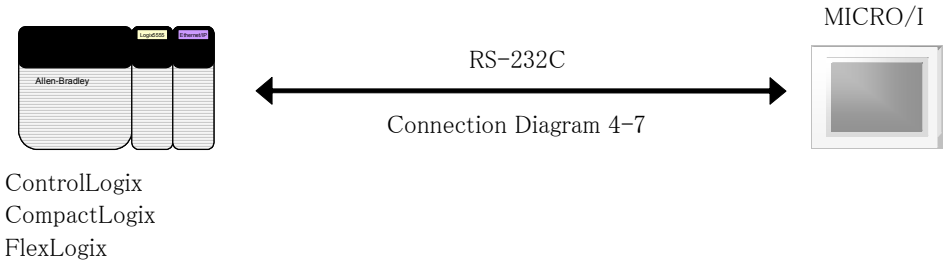
4.2.5 MicroLogix 1500 (D-sub 9 Pin connector on CPU Unit)



4.2.6 Ethernet/IP (MicroLogix, PLC-5, SLC 500, ControlLogix, CompactLogix)



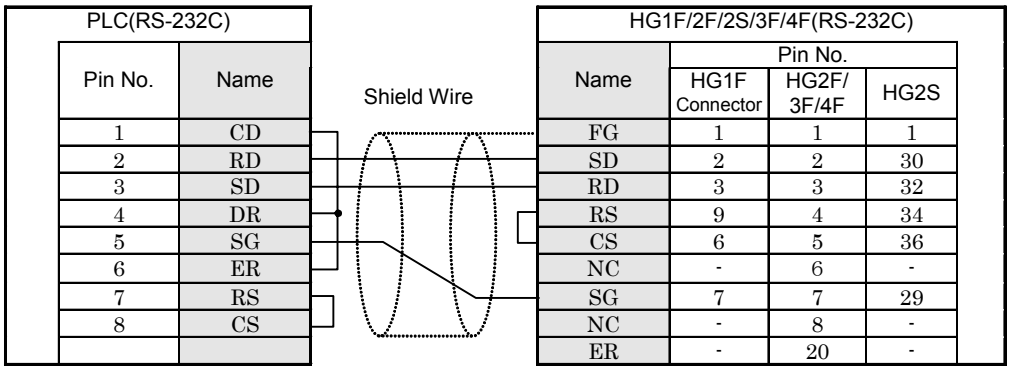
4.2.6 Control Logix/CompactLogix/FlexLogix(CPU Unit)



4.3 Connection Diagram

For details regarding wiring and termination resistors, refer to "3 Important Points Regarding About Wiring" in Chapter 1.

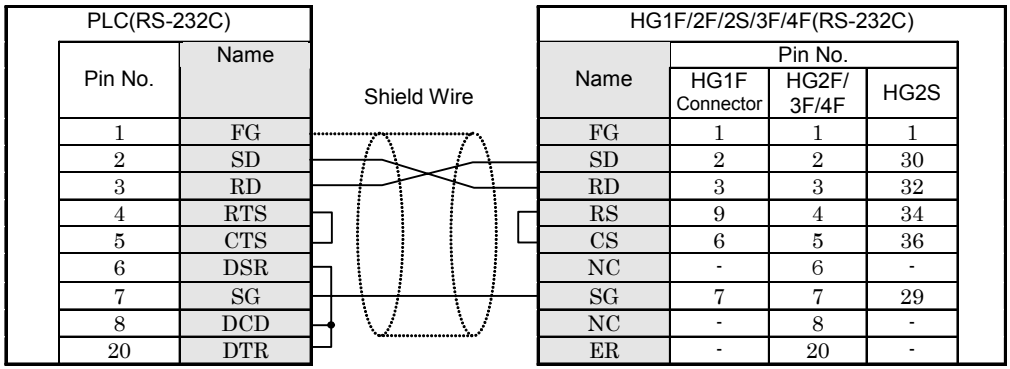
Connection Diagram 4-1: SLC 500 (RS-232C) to MICRO/I



D-sub, 9P connector socket type (unit side)

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

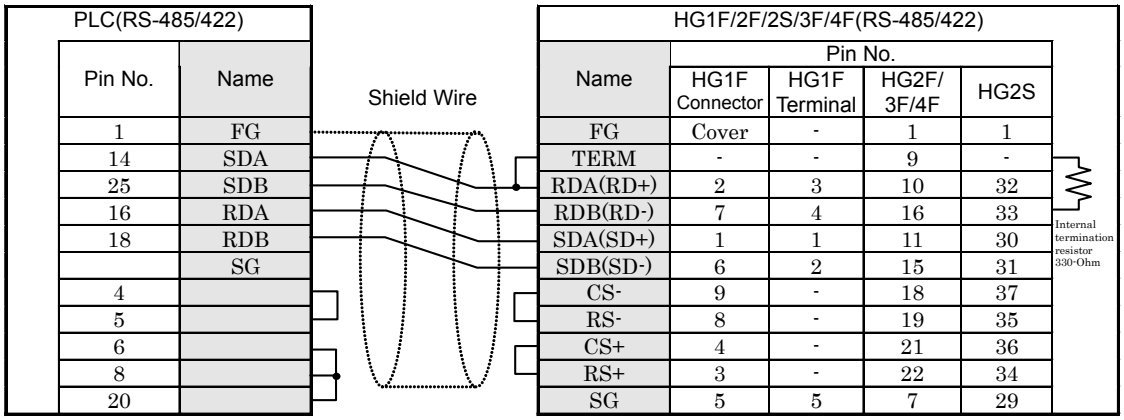
Connection Diagram 4-2: Interface Module (RS-232C) to MICRO/I and PLC-5 (RS-232-C) to MICRO/I



D-sub, 25P connector socket type (unit side)

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

Connection Diagram 4-3: Interface Module (RS-422) to MICRO/I

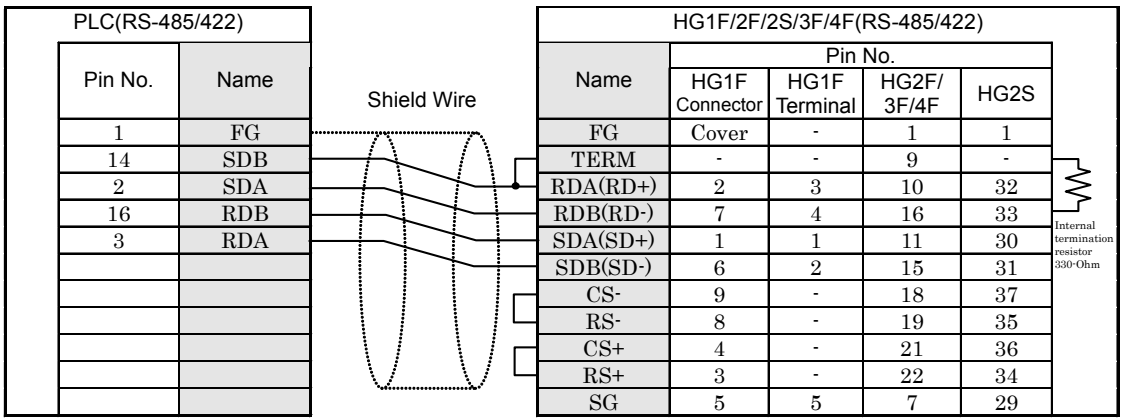


D-sub, 25P connector socket type (unit side)

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

- There is no pin No. corresponding to TERM on the HG1F/HG2S. When inserting a termination resistor, use a communication switch. For the setting of the switch, refer to "3 Important Points Regarding Wiring" in Chapter 1.

Connection Diagram 4-4: PLC-5 (RS-422) to MICRO/I

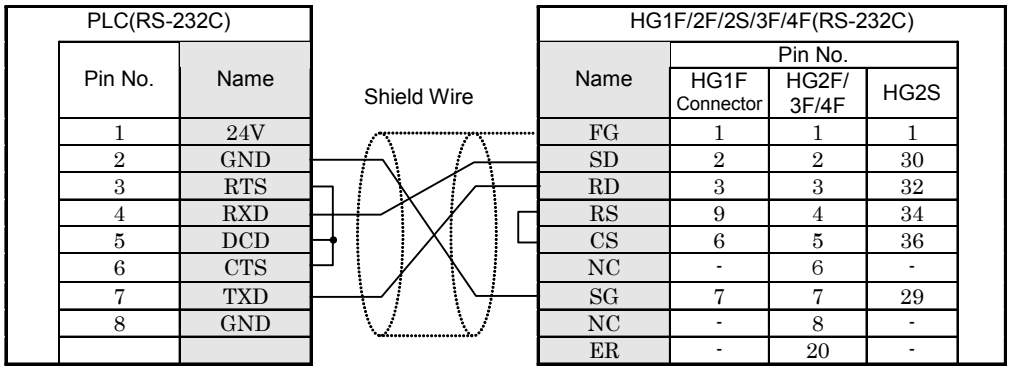


D-sub, 25P connector socket type (unit side)

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

- There is no pin No. corresponding to TERM on the HG1F/HG2S. When inserting a termination resistor, use a communication switch. For the setting of the switch, refer to "3 Important Points Regarding Wiring" in Chapter 1.

Connection Diagram 4-5: MicroLogix 1000/1200/1500(Mini Din connector) to MICRO/I

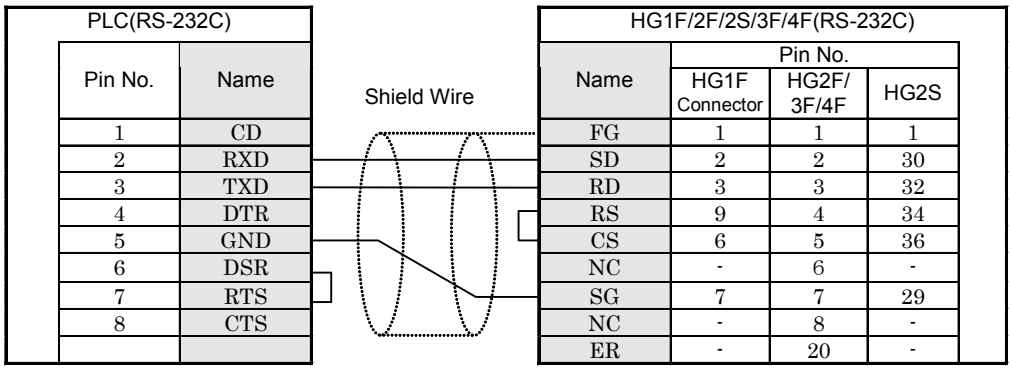


Mini DIN 8P socket type

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

Chap.2

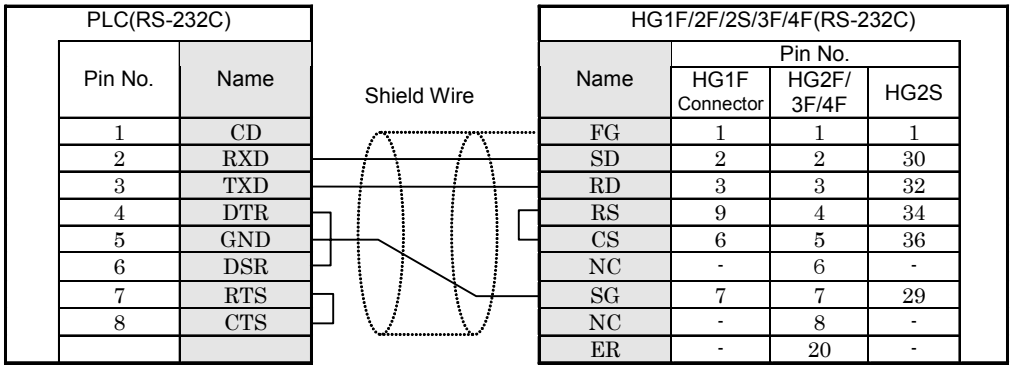
Connection Diagram 4-5: MicroLogix 1500(D-sub 9 Pin connector) to MICRO/I



Mini DIN 8P socket type

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

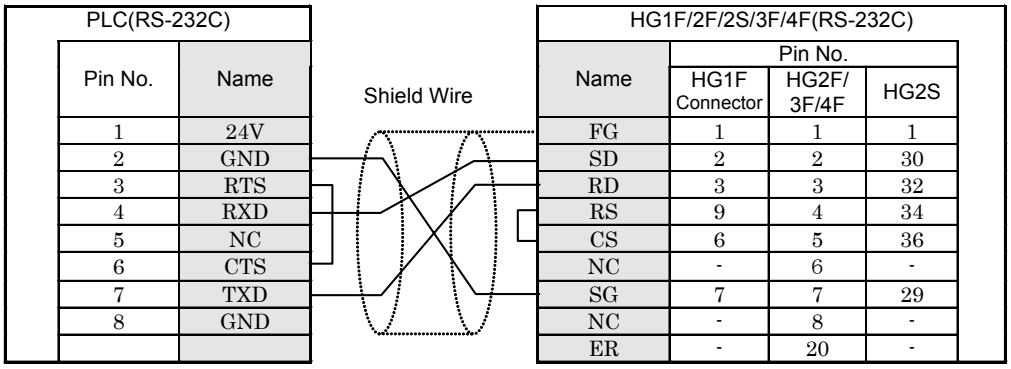
Connection Diagram 4-7: ControlLogix/CompactLogix/FlexLogix ― MICRO/I



Mini DIN 8P socket type

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

Connection Diagram 4-8: MicroLogix 1100(Mini Din connector) to MICRO/I



Mini DIN 8P socket type

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

4.4 Environment Settings

Allowed communication settings for MicroLogix, SLC 500 and PLC-5 are as follows.

4.4.1 MicroLogix, SLC 500 (Full Duplex)

Item	Setting
Baud Rate (bps) (*1)(*2)	1200, 2400, 4800, 9600, 19200
Data Bits (*2)	8 (fixed)
Parity (*1)(*2)	None or Even
Stop Bits (*1)(*2)	1
Flow Control	ER or None
Serial Interface	RS-232C
Driver (*1)	DF1 Full-Duplex (*4)
Control Line (*1)	No Handshaking (*4)
Error Detection (*1)	CRC (*4)
Embedded Response (*1)	Auto Detect
Duplicate Packet Detect (*1)	Enable
Node Address (*1)(*2)(*3)	0 to 254 (decimal)

(*1) Select using RSLogix software (set Chan0 to System of Controller-Channel Configuration).

(*2) The setting for this item must match the setting on the HG Series unit.

(*3) Select the MICRO/I Node Address using the Node Address (HG) under "Project Settings" in WindO/I-NV2 software.

(*4) Be certain to select as indicated.

4.4.2 SLC 500 (Half Duplex)

Item	Setting
Communication Interface	RS-232C
Baud Rate (bps) (*1)(*2)	1200, 2400, 4800, 9600, 19200
Data Bits (*2)	8 (fixed)
Parity (*1)(*2)	None or Even
Stop Bits (*1)(*2)	1
Driver (*1)	DF1 Half-Duplex Slave (*4)
Duplicate Detect (*1)	Disabled (*4)
Error Detect (*1)	BCC (*4)
Control Line (*1)	No handshaking (*4)
Node Address (*1)(*2)(*3)	0 to 254 (decimal)

(*1) Set using RSLogix500 (set Chan0 to System of Controller-Channel Configuration).

(*2) The setting for this item must match the setting on the HG Series unit.

(*3) Set the MICRO/I Node Address using the Node Address (HG) setting in Project Setting of WindO/I-NV2.

(*4) Be certain to set as indicated.

4.4.3 PLC-5

Item	Setting
Communication Interface(*1)(*2)	RS-232-C/RS-485-A (4 line)
Baud Rate (bps) (*4)(*5)	1200, 2400, 4800, 9600 or 19200
Data Bits (*4)(*5)	8 (fixed)
Parity (*4)(*5)	None or Even
Stop Bits (*4)(*5)	1 (fixed)
Communication Protocol (*4)	Half duplex (*6)
Channel 0 Protocol (*4)	DF1 Slave (*6)
Duplicate Detect (*4)	OFF (*6)
Error Detect (*4)	BCC (*6)
Control Line (*4)	No handshaking (*6)
Network Link (*1)	Data highway plus
PLC-5 Processor Station Address (*3)(*5)	00 to 77(Octal)
1770-KF2 Node Number (*1)(*5)(*7)	00 to 77(Octal)

(*1) When using the 1770-KF2 Module, select this setting using the 1770-KF2 Module DIP switch

(*2) In the case of a direct connection to the PLC-5 Processor Module, select this setting using the PLC-5 Processor Module DIP switch.

(*3) This setting is required regardless of whether 1770-KF2 Module is used or not. When using the 1770-KF2 Module, select this setting using the DIP switch on PLC-5 Processor, and in the case of a direct connection to the PLC-5 Processor Module, select using the 6200 Programming Software (Channel 0 configuration).

(*4) When using the 1770-KF2 Module, select this setting using the DIP switch on 1770-KF2 Module. In case of a direct connection to the PLC-5 Processor Module, select using the 6200 Programming Software (Channel 0 configuration).

(*5) The setting for this item must match the setting on the HG Series unit.

(*6) Be certain to select as indicated.

(*7) This selection is only necessary if you are using the Interface Module.

Setting the Station Address using WindO/I-NV2

When using the 1770-KF2 Module, select “Use 1770-KF2” checkbox in the WindO/I-NV2 Project Settings, and set “Station Address (1770-KF2)” and “Station Address (PLC5)”.

In case of direct connection to PLC5 Processor Module, do not select the “Use 1770-KF2” checkbox. Instead select “Station Address (1770-KF2)”.

These numbers are to be set using octal for the PLC-5 and 1770-KF2, but hexadecimal for the WindO/I-NV2.

4.4.4 Ethernet/IP (ControlLogix, CompactLogix, PLC-5, SLC 500, MicroLogix)

Communication Interface Setting (Ethernet)

Item	Setting
IP Address	Set IP Address of MICRO/I
Subnet Mask	Set Subnet Mask of MICRO/I
Default Gateway	Set Default Gateway of MICRO/I

Host I/F Network Setting

Set some network information of PLCs. It can be set to maximum of 16.

Item	Setting
Station No.	The number to select PLC when set device address.
IP Address	Set IP Address of communicated PLC
Port Number	Set Port Number of communicated PLC
Product	Set Product of communicated PLC (For ControlLogix or CompactLogix, select « Logix ».)

4.4.5 ControlLogix, CompactLogix, FlexLogix

Item	Setting
Baud Rate (bps) (*1)	1200, 2400, 4800, 9600, 19200
Data Bits (*1)	8 (fixed)
Parity (*1)	None or Even
Stop Bits (*1)	1
Flow Control	None
Serial Interface	RS-232C
Protocol	DF1 Point to Point (*3)
Control Line	No Handshaking (*3)
Error Detection	BCC / CRC
Embedded Response	Auto Detect
Duplicate Packet Detect	Enable
Station Address (*1)(*2)	0 to 254 (decimal)

(*2) The setting for this item must match the setting on the HG Series unit.

(*3) Select the MICRO/I Node Address using the Station Address (HG) under "Project Settings" in WindO/I-NV2 software.

(*4) Be certain to select as indicated.

4.5 Compatible Devices

The types of compatible devices and their ranges are shown below. Device address selection for the MicroLogix1200, SLC 500 and PLC-5 CPUs are is done using File No., Element No., Bit No. etc., with an appropriate delimiter. But the WindO/I-NV2 address selection is done without the delimiter. The MICRO/I address specification syntax (address specification rules) is explained below. Follow the syntax below when performing address selections using WindO/I-NV2 software.

MICRO/I support the following device types and range.
WindO/I-NV2 supports the device address format as same as MicroLogix, SLC 500, PLC-5 programming software along with the standard device address format of WindO/I-NV2.

Standard device address format of WindO/I-NV2
File Number, Element and Bit Number are separated by some delimiters in device address format of Allen-Bradley's software.
However, standard device address format of WindO/I-NV2 does not contain delimiters.
It is remove some delimiters from Allen-Bradley's device address format.

Allen-Bradley device address format
This device address format is same as the device address format of Allen-Bradley's software.
(Some part of the format is deferent. Refer to the following.)

4.5.1 MicroLogix, SLC 500 (Full Duplex)

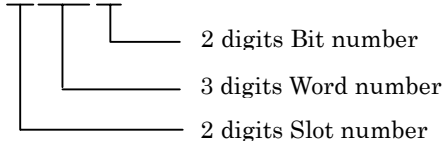
- Bit Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Output	O	O	0 - 1625515	R	10(*1)
Input	I	I	0 - 1625515	R	10(*1)
Binary	B	B	300000 - 325515, 900000 - 25525515	R/W	10(*2)
Timer Enable Bit	TEN	T(EN)	4000 - 4255, 9000 - 255255	R	10(*3)
Timer Timing Bit	TTT	T(TT)	4000 - 4255, 9000 - 255255	R	10(*3)
Timer Done Bit	TDN	T(DN)	4000 - 4255, 9000 - 255255	R	10(*3)
Counter Up Enable Bit	CCU	C(CU)	5000 - 5255, 9000 - 255255	R	10(*3)
Counter Down Enable Bit	CCD	C(CD)	5000 - 5255, 9000 - 255255	R	10(*3)
Counter Done Bit	CDN	C(DN)	5000 - 5255, 9000 - 255255	R	10(*3)
Counter Overflow Bit	COV	C(OV)	5000 - 5255, 9000 - 255255	R	10(*3)
Counter Underflow Bit	CUN	C(UN)	5000 - 5255, 9000 - 255255	R	10(*3)
Counter Update Accumulator	CUA	C(UA)	5000 - 5255, 9000 - 255255	R	10(*3)
Control Enable Bit	REN	R(EN)	6000 - 6255, 9000 - 255255	R	10(*3)
Control Queue Bit	REU	R(EU)	6000 - 6255, 9000 - 255255	R	10(*3)
Control Asynchronous Bit Done Bit	RDN	R(DN)	6000 - 6255, 9000 - 255255	R	10(*3)
Control Synchronous Done Bit	REM	R(EM)	6000 - 6255, 9000 - 255255	R	10(*3)
Control Error Bit	RER	E(ER)	6000 - 6255, 9000 - 255255	R	10(*3)
Control Unload Bit	RUL	R(UL)	6000 - 6255, 9000 - 255255	R	10(*3)
Control Running Bit	RIN	R(IN)	6000 - 6255, 9000 - 255255	R	10(*3)
Control Found Bit	RFD	R(FD)	6000 - 6255, 9000 - 255255	R	10(*3)

(*1) Address selection rule is as follows.

Standard device address format of WindO/I-NV2

I 1625515



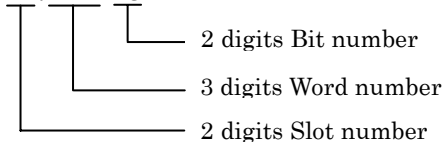
Example

MicroLogix1200 Address --- I:2.12/6

WindO/I-NV2 Address --- I 201206

Allen-Bradley device address format

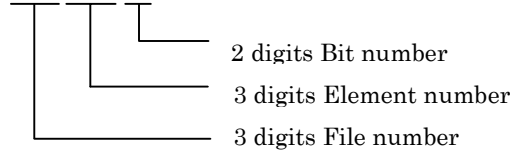
I 16.255/15



(*2) Address selection rule is as follows.

Standard device address format of WindO/I-NV2

B 25525515



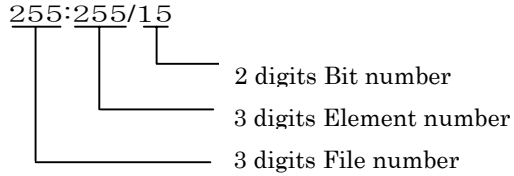
Example

MicroLogix1200 Address --- B10:123/5

WindO/I-NV2 Address --- B 1012305

Allen-Bradley device address format

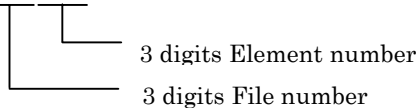
B 255:255/15



(*3) Address selection rule is as follows.

Standard device address format of WindO/I-NV2

TEN 255255



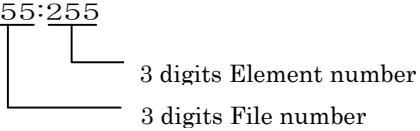
Example

MicroLogix1200 Address --- T12:123/EN

WindO/I-NV2 Address --- TEN 12123

Allen-Bradley device address format

TEN 255:255



WARNING A communication error will occur if you specify a file or element that is not allocated to the MicroLogix1200, SLC 500 data table map.

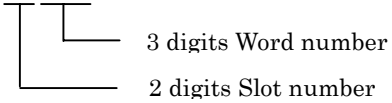
· Word Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Output	WO	O	0 - 16255	R	10(*1)
Input	WI	I	0 - 16255	R	10(*1)
Status	S	S	2000 - 2065	R	10(*2)
Bit	WB	B	3000 - 3255, 9000 - 255255	R/W	10(*2)
Timer (Preset Value)	TP	T(P)	4000 - 4255, 9000 - 255255	R/W	10(*2)
Timer (Accumulated Value)	TA	T(A)	4000 - 4255, 9000 - 255255	R/W	10(*2)
Counter (Preset Value)	CP	C(P)	5000 - 5255, 9000 - 255255	R/W	10(*2)
Counter (Accumulated Value)	CA	C(A)	5000 - 5255, 9000 - 255255	R/W	10(*2)
Control (Number of characters specified to be sent or received)	RLEN	R(LEN)	6000 - 6255, 9000 - 255255	R/W	10(*2)
Control (Number of characters actually sent or received)	RPOS	R(POS)	6000 - 6255, 9000 - 255255	R/W	10(*2)
Integer	N	N	7000 - 7255, 9000 - 255255	R/W	10(*2)
Float Point	F	F	80000 - 82551, 90000 - 2552551	R/W	10(*3)
Long Word	L	L	90000 - 2552551	R/W	10(*3)
ASCII	A	A	9000 - 255255	R/W	10(*2)

(*1) Address selection rule is as follows.

Standard device address format of WindO/I-NV2

I 16255



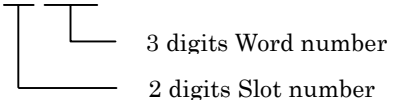
Example

MicroLogix1200 Address --- I:12.10

WindO/I-NV2 Address --- I 12010

Allen-Bradley device address format

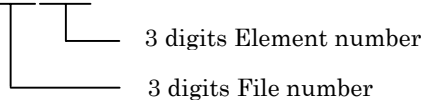
I 16.255



(*2) Address selection rule is as follows.

Standard device address format of WindO/I-NV2

WB 255255



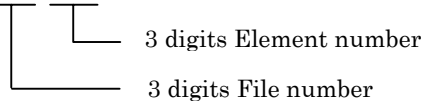
Example

MicroLogix1200 Address --- B123:255

WindO/I-NV2 Address --- WB 123255

Allen-Bradley device address format

WB 255:255

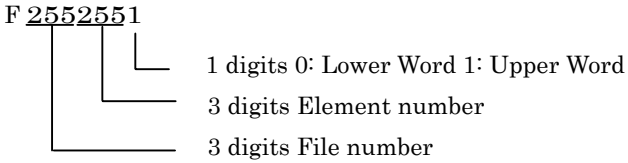


(*3) Address selection rule is as follows.

WindO/I-NV2 uses 32 bit device as the divided 2 word device.

Therefore, the last one digit shows that the device is upper word or lower word.

Standard device address format of WindO/I-NV2

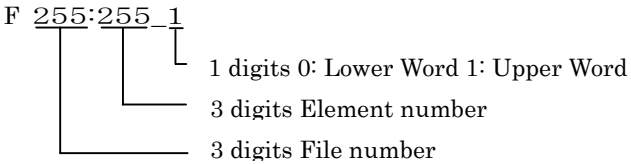


Example

MicroLogix1200 Address --- F123:255

WindO/I-NV2 Address --- F 1232550 and F1232551

Allen-Bradley device address format



- WO,WI,WB are same devices as O,I,B. They are used as word devices.
- Floating Point (F) and Long Word (L) are 32-bit devices. When you write to these devices, please be sure to write a high word and low word simultaneously. If you write only high word or only low word, 0 will be written into the other word.

WARNING

A communication error will occur if you specify a file or element that is not allocated to the MicroLogis1200, SLC 500 data table map.

4.5.2 SLC 500 (Half Duplex)

- Bit Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Timer (done)	TDN	T	4000 - 4255, 10000 - 255255	R	10
Timer (timing)	TT	T	4000 - 4255, 10000 - 255255	R	10
Timer (enable)	EN	T	4000 - 4255, 10000 - 255255	R	10
Counter (done)	CDN	C	5000 - 5255, 10000 - 255255	R	10
Counter (up enable)	CU	C	5000 - 5255, 10000 - 255255	R	10
Counter (down enable)	CD	C	5000 - 5255, 10000 - 255255	R	10
Counter (overflow)	OV	C	5000 - 5255, 10000 - 255255	R	10
Counter (underflow)	UN	C	5000 - 5255, 10000 - 255255	R	10
Counter (high-speed counter update)	UA	C	5000 - 5255, 10000 - 255255	R	10

Address selection rule is as follows.
Standard device address format of WindO/I-NV2

WB 255255

- 3 digits Element number
- 3 digits File number

Example

SLC 500 Address --- T 4:12 / TD

WindO/I-NV2 Address --- TDN 4 012

Allen-Bradley device address format

TDN 255:255

- 3 digits Element number
- 3 digits File number

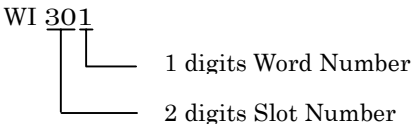
・ Word Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Input	WI	I	0 - 301	R	10 (*1)
Output	WO	O	0 - 301	R	10 (*1)
Bit	WB	B	3000 - 3255, 10000 - 255255	R/W	10 (*2)
Timer (accumulated value)	TA	T	4000 - 4255, 10000 - 255255	R	10 (*2)
Counter (accumulated value)	CA	C	5000 - 5255, 10000 - 255255	R	10 (*2)
Timer (preset value)	TP	T	4000 - 4255, 10000 - 255255	R/W	10 (*2)
Counter (preset value)	CP	C	5000 - 5255, 10000 - 255255	R/W	10 (*2)
Integer (*3)	N	N	7000 - 7255, 10000 - 255255	R/W	10 (*2)
ASCII	A	A	10000 - 255255	R/W	10 (*2)

(*3) Allocate the System Area above the file number 7 integer file. It will not operate with file number 10 and above. You must construct an area above the SLC 500 data table file that corresponds to the System Area Address set by WindO/I-NV2.

(*1) Address selection rule is as follows.

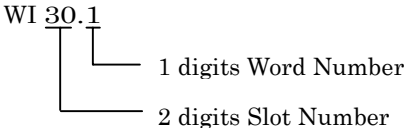
Standard device address format of WindO/I-NV2



SLC 500 Address --- I 30.1

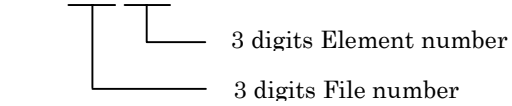
WindO/I-NV2 Address ---WI 301

Allen-Bradley device address format



(*2) Address selection rule is as follows.

Standard device address format of WindO/I-NV2

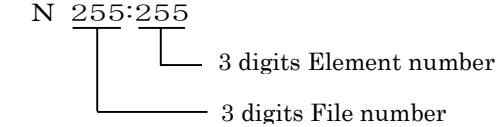


Example

SLC 500 Address --- N 255:255

WindO/I-NV2 Address --- N 255255

Allen-Bradley device address format



The input and output addresses are made up of the slot number and the word number.

- The address makeup is as follows:
  Bottom digit: Word number
  2nd and 3rd digits from the bottom: Slot number

- If the module in the slot has 16 or fewer points, the word number is 0, and if it is a 32-point module, the word number is 0 for the lower word (bit 0 to bit 15) and 1 for the upper word (bit 16 to bit 31).

- In the case of a rack-type controller, the slot number is attributed as is, and in the case of a package-type controller, it is as follows.
  Package-type controller: 0
  Left slot of the expansion rack: 1
  Right slot of the expansion rack: 2

Example:

Address specification with SLC 500: I: 1.0

Address specification with WindO/I-NV2: 1 0

WARNING

- You cannot directly write to inputs and outputs.
- A communication error will occur if you specify a file or element that is not allocated to the SLC 500 data table map.

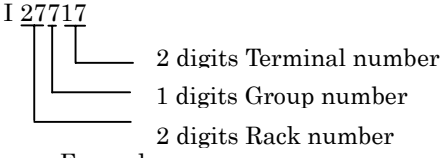
4.5.3 PLC-5 (Half Duplex)

・ Bit Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Input	I	I	0 - 27717(*1)	R/W	8
Output	O	O	0 - 27717(*1)	R/W	8
Bit	B	B	300000 - 9999915(*2)	R	10
Timer (complete)	TDN	T	3000 - 99999(*3)	R	10
Timer (timing)	TT	T	3000 - 99999(*3)	R	10
Timer (enable)	EN	T	3000 - 99999(*3)	R	10
Counter (complete)	CDN	C	3000 - 99999(*3)	R	10
Counter (up enable)	CU	C	3000 - 99999(*3)	R	10
Counter(down enable)	CD	C	3000 - 99999(*3)	R	10
Counter (overflow)	OV	C	3000 - 99999(*3)	R	10
Counter (underflow)	UN	C	3000 - 99999(*3)	R	10

(*1) Address selection rule is as follows.

Standard device address format of WindO/I-NV2

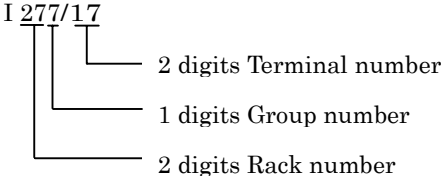


Example

PLC-5 Address --- I:277/17

WindO/I-NV2 Address --- I 27717

Allen-Bradley device address format



(*2) Address selection rule is as follows.

Standard device address format of WindO/I-NV2

B 00301215

- 2 digits Bit number
- 3 digits Element number (or word number)
- 3 digits File number

Example

PLC-5 Address --- B 3:12 / 15

WindO/I-NV2 Address --- 3 012 15

Allen-Bradley device address format

B 3:12/15

- 2 digits Bit number
- 3 digits Element number (or word number)
- 3 digits File number

With the PLC-5, addresses can be specified with word and bit units, or with bit units only (i.e. there are two ways), while with WindO/I-NV2 you must specify addresses using word and bit units.

(*3) Address selection rule is as follows.

Standard device address format of WindO/I-NV2

T 004012

- 3 digits Element number (or word number)
- 3 digits File number

Example

PLC-5 Address --- T 4:12 / TD

WindO/I-NV2 Address --- 4 012

Allen-Bradley device address format

T 4:12

- 3 digits Element number (or word number)
- 3 digits File number

・ Word Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Input	WI	I	0 - 277(*1)	R	8
Output	WO	O	0 - 277(*1)	R/W	8
Bit	WB	B	3000 - 99999 (*2)	R/W	10
Timer (current value)	TA	T	3000 - 99999 (*2)	R	10
Counter (current value)	CA	C	3000 - 99999 (*2)	R	10
Timer (preset value)	TP	T	3000 - 99999 (*2)	R/W	10
Counter (preset value)	CP	C	3000 - 99999 (*2)	R/W	10
Integer	N	N	3000 - 99999(*2)(*3)	R/W	10
BCD	D	D	3000 - 99999 (*2)	R/W	10
ASCII	A	A	3000 - 99999 (*2)	R/W	10

(*1) Address selection rule is as follows.

Standard device address format of WindO/I-NV2

I 277

1 digits Group number

2 digits Rack number

Example

PLC-5 Address --- I:277

WindO/I-NV2 Address --- I 277

Allen-Bradley device address format

I 277

1 digits Group number

2 digits Rack number

(*2) Address selection rule is as follows.

Standard device address format of WindO/I-NV2

N 040045

3 digits Element number (or word number)

3 digits File number

Example

PLC-5 Address --- N 40:45

WindO/I-NV2 Address --- 40 045

Allen-Bradley device address format

N 40:45

3 digits Element number (or word number)

3 digits File number

A communication error will occur if you specify a file or element that is not allocated to the PLC-5 data table map.

(*3) System Area should assigned using a file number between 1 and 9 only. It will not work with file number 10 or above. You must construct an area in the PLC-5 data table file that corresponds to the System Area Address selected by WindO/I-NV2.

4.5.4 Ethernet/IP

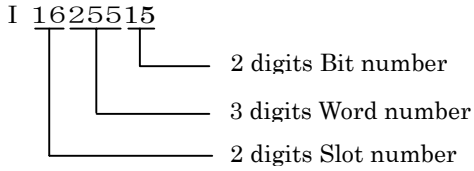
If you select Ethernet/IP as Host I/F driver, the driver contains some PLCs devices.
Therefore, the following devices name may be not same as devices name for each PLC.
Refer to the following cross reference table about detail.

・ Bit Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
SLC/MicroLogix Input	SI	I	0 - 1625515	R	10 (*1)
SLC/MicroLogix Output	SO	O	0 - 1625515	R	10 (*1)
PLC-5 Input	PI	I	0 - 27717	R	10 (*2)
PLC-5 Output	PO	O	0 - 27717	R/W	10 (*2)
Binary	B	B	0 - 99999915	R/W	10 (*3)
Timer Enable bit	TEN	TEN	0 - 999999	R	10 (*4)
Timer Timing Bit	TTT	TTT	0 - 999999	R	10 (*4)
Timer Done Bit	TDN	TDN	0 - 999999	R	10 (*4)
Counter Up Enable Bit	CCU	CCU	0 - 999999	R	10 (*4)
Counter Down Enable Bit	CCD	CCD	0 - 999999	R	10 (*4)
Counter Done Bit	CDN	CDN	0 - 999999	R	10 (*4)
Counter Overflow Bit	COV	COV	0 - 999999	R	10 (*4)
Counter Underflow Bit	CUN	CUN	0 - 999999	R	10 (*4)
Counter Update Accumulator	CUA	CUA	0 - 999999	R	10 (*4)
Control Enable Bit	REN	REN	0 - 999999	R	10 (*4)
Control Queue Bit	REU	REU	0 - 999999	R	10 (*4)
Control Aynchronous Done Bit	RDN	RDN	0 - 999999	R	10 (*4)
Control Synchronous Done BIt	REM	REM	0 - 999999	R	10 (*4)
Control Error Bit	RER	RER	0 - 999999	R	10 (*4)
Control Unload Bit	RUL	RUL	0 - 999999	R	10 (*4)
Control Running Bit	RIN	RIN	0 - 999999	R	10 (*4)
Control Found Bit	RFD	RFD	0 - 999999	R	10 (*4)

(*1) Address selection rule is as follows.

Standard device address format of WindO/I-NV2

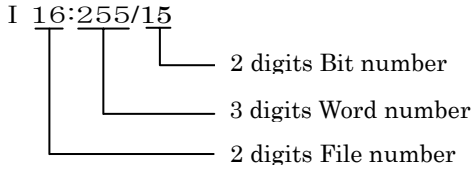


Example

MicroLogix/SLC 500 Address --- I:2/12.6

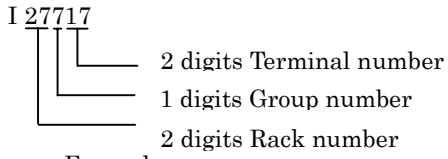
WindO/I-NV2 Address --- I 201206

Allen-Bradley device address format



(*2) Address selection rule is as follows.

Standard device address format of WindO/I-NV2

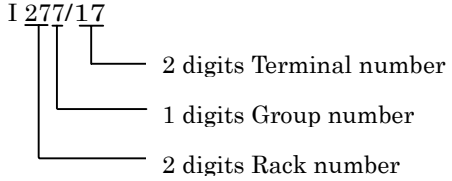


Example

PLC-5 Address --- I:277/17

WindO/I-NV2 Address --- I 27717

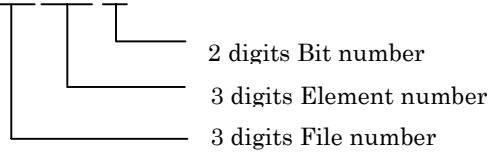
Allen-Bradley device address format



(*3) Address selection rule is as follows.

Standard device address format of WindO/I-NV2

B 25525515



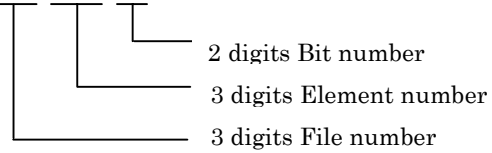
Example

MicroLogix1200 Address --- B10:123/5

WindO/I-NV2 Address --- B 1012305

Allen-Bradley device address format

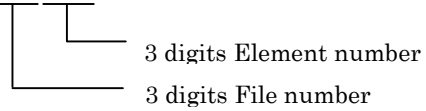
B 255:255/15



(*4) Address selection rule is as follows.

Standard device address format of WindO/I-NV2

TEN 255255



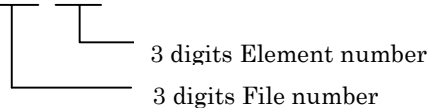
Example

MicroLogix1200 Address --- T12:123/EN

WindO/I-NV2 Address --- TEN 12123

Allen-Bradley device address format

TEN 255:255



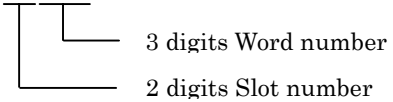
· Word Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
SLC/MicroLogix Input (Word)	SWI	I	0 - 16255	R	10 (*1)
SLC/MicroLogix Output (Word)	SWO	O	0 - 16255	R	10 (*1)
PLC-5 Input (Word)	PWI	I	0 - 277	R	10 (*2)
PLC-5 Output (Word)	PWO	O	0 - 277	R/W	10 (*2)
Status	S	S	2000 - 2026	R	10 (*3)
Timer (Preset Value)	TP	TP	0 - 999999	R/W	10 (*3)
Timer (Accumulated Value)	TA	TA	0 - 999999	R/W	10 (*3)
Counter (Preset Value)	CP	CP	0 - 999999	R/W	10 (*3)
Counter (Accumulated Value)	CA	CA	0 - 999999	R/W	10 (*3)
Control LEN	RLEN	RLEN	0 - 999999	R/W	10 (*3)
Control POS	RPOS	RPOS	0 - 999999	R/W	10 (*3)
Bit (Word)	WB	WB	0 - 999999	R/W	10 (*3)
Integer	N	N	0 - 999999	R/W	10 (*3)
Float/REAL	F	F	0 - 9999991	R/W	10 (*4)
Long/DINT	L	L	0 - 9999991	R/W	10 (*4)
Ascii	A	A	0 - 999999	R/W	10 (*3)
BCD	BCD	BCD	0 - 999999	R/W	10 (*3)
SINT	SINT	SINT	0 - 999999	R/W	10 (*3)

(*1) Address selection rule is as follows.

Standard device address format of WindO/I-NV2

I 16255



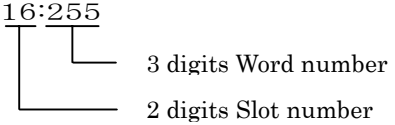
Example

MicroLogix1200 Address --- I:12/10

WindO/I-NV2 Address --- I 12010

Allen-Bradley device address format

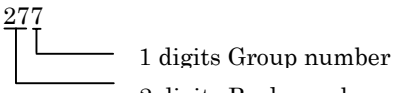
I 16:255



(*2) Address selection rule is as follows.

Standard device address format of WindO/I-NV2

I 277



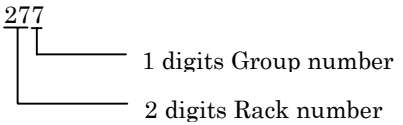
Example

PLC-5 Address --- I:277

WindO/I-NV2 Address --- I 277

Allen-Bradley device address format

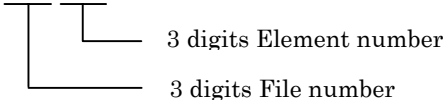
I 277



(*3) Address selection rule is as follows.

Standard device address format of WindO/I-NV2

WB 255255



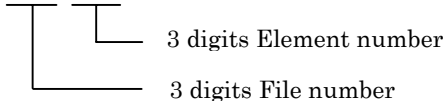
Example

MicroLogix1200 Address --- B123:255

WindO/I-NV2 Address --- WB 123255

Allen-Bradley device address format

WB 255:255



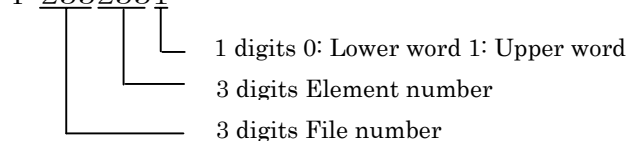
(*4) Address selection rule is as follows.

WindO/I-NV2 uses 32 bit device as the divided 2 word device.

Therefore, the last one digit shows that the device is upper word or lower word.

Standard device address format of WindO/I-NV2

F 2552551

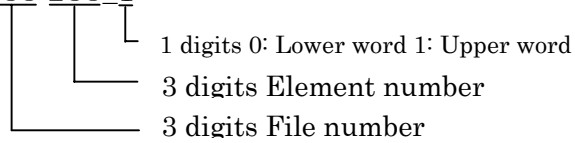


MicroLogix1200 Address --- F123:255

WindO/I-NV2 Address --- F 1232550 or F1232551

Allen-Bradley device address format

F 255:255_1



- WO,WI,WB are same devices as O,I,B. They are used as word devices.
- Floating Point (F) and Long Word (L) are 32-bit devices. When you write to these devices, please be sure to write a high word and low word simultaneously. If you write only high word or only low word, 0 will be written into the other word.

Cross reference table of devices name

Bit Device

Device Name	Device Symbol	MicroLogix/SLC500	PLC-5	ControlLogix CompcatLogix
SLC/MicroLogix Input	SI	Input(Bit)	-	-
SLC/MicroLogix Output	SO	Output(Bit)	-	-
PLC-5 Input	PI	-	Input(Bit)	-
PLC-5 Output	PO	-	Output(Bit)	-
Binary	B	Binary	Binary	-
Timer Enable bit	TEN	Timer Enable bit	Timer Enable bit	-
Timer Timing Bit	TTT	Timer Timing Bit	Timer Timing Bit	-
Timer Done Bit	TDN	Timer Done Bit	Timer Done Bit	-
Counter Up Enable Bit	CCU	Counter Up Enable Bit	Counter Up Enable Bit	-
Counter Down Enable Bit	CCD	Counter Down Enable Bit	Counter Down Enable Bit	-
Counter Done Bit	CDN	Counter Done Bit	Counter Done Bit	
Counter Overflow Bit	COV	Counter Overflow Bit	Counter Overflow Bit	-
Counter Underflow Bit	CUN	Counter Underflow Bit	Counter Underflow Bit	-
Counter Update Accumulator	CUA	Counter Update Accumulator	-	-
Control Enable Bit	REN	Control Enable Bit	-	-
Control Queue Bit	REU	Control Queue Bit	-	-
Control Aynchronous Done Bit	RDN	Control Aynchronous Done Bit	-	-
Control Synchronous Done BIt	REM	Control Synchronous Done BIt	-	-
Control Error Bit	RER	Control Error Bit	-	-

Control Unload Bit	RUL	Control Unload Bit	-	-
Control Running Bit	RIN	Control Running Bit	-	-
Control Found Bit	RFD	Control Found Bit	-	-

Word Device

Device Name	Device Symbol	MicroLogix/SLC500	PLC-5	ControlLogix CompactLogix
SLC/MicroLogix Input (Word)	SWI	Input (Word)	-	-
SLC/MicroLogix Output (Word)	SWO	Output (Word)	-	-
PLC-5 Input (Word)	PWI	-	Input (Word)	-
PLC-5 Output (Word)	PWO	-	Output (Word)	-
Status	S	Status	Status	-
Timer (Preset Value)	TP	Timer (Preset Value)	Timer (Preset Value)	-
Timer (Accumulated Value)	TA	Timer (Accumulated Value)	Timer (Accumulated Value)	-
Counter (Preset Value)	CP	Counter (Preset Value)	Counter (Preset Value)	-
Counter (Accumulated Value)	CA	Counter (Accumulated Value)	Counter (Accumulated Value)	-
Control LEN	RLEN	Control LEN	-	-
Control POS	RPOS	Control POS	-	-
Bit (Word)	WB	Bit (Word)	Bit (Word)	-
Integer	N	Integer	Integer	INT
Float/REAL	F	Float	-	REAL
Long/DINT	L	Long	-	DINT
Ascii	A	Ascii	Ascii	-
BCD	BCD	-	BCD	-
SINT	SINT	-	-	SINT

4.5.4 Logix DF1 (Full Duplex)

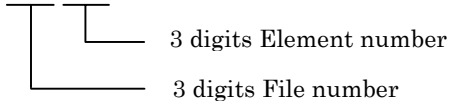
Word Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
INT	INT	INT	0 - 999999	R/W	10 (*1)
REAL	REAL	REAL	0 - 9999991	R/W	10 (*2)
DINT	DINT	DINT	0 - 9999991	R/W	10 (*2)
SINT	SINT	SINT	0 - 999999	R/W	10 (*1)

(*1) Address selection rule is as follows.

Standard device address format of WindO/I-NV2

INT 255255



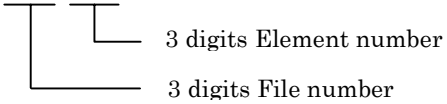
Example

ControlLogix Address --- INT 123:255

WindO/I-NV2 Address --- INT 123255

Allen-Bradley device address format

INT 255:255

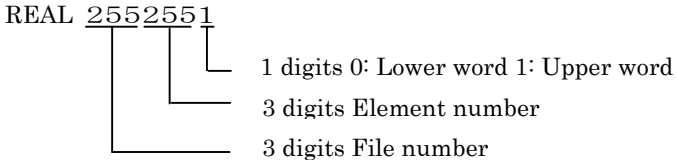


(*2) Address selection rule is as follows.

WindO/I-NV2 uses 32 bit device as the divided 2 word device.

Therefore, the last one digit shows that the device is upper word or lower word.

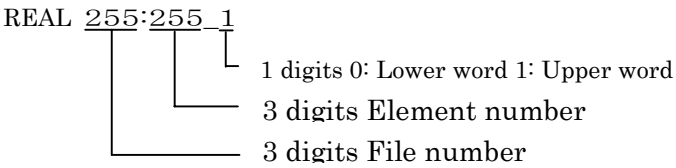
Standard device address format of WindO/I-NV2



ControlLogix Address --- REAL 123:255

WindO/I-NV2 Address --- REAL 1232550 or F1232551

Allen-Bradley device address format



4.6 The way to set device address when use ControlLogix, CompactLogix series

In ControlLogix and CompactLogix series, device is set with tag name. However you have to set with Symbol and Address format which is same as MicroLogix, SLC 500 and PLC-5 because WindO/I-NV2 can not operate tag name directly.

You have to attach each tag names to device symbol and device address at that time.
The work is called to mapping.

4.6.1 The way of mapping

The following work is done in RS Logix 5000 software.

1. Define some tags to communicate with MICRO/I in「Controller Tags」
2. Select「Logic」and「Map PLC/SLC Messages…」on main menu in RS Logix 5000 software.
3. Attach File Number to each tag name in「PLC3,5/SLC Mapping」dialog box.

4.6.2 The way to select device address in WindO/I-NV2

When select device address in WindO/I-NV2, set tag type to device symbol and set array number to File Number.

4.6.3 The process to select device address

1. Define some tags in RSLogix 5000 software.

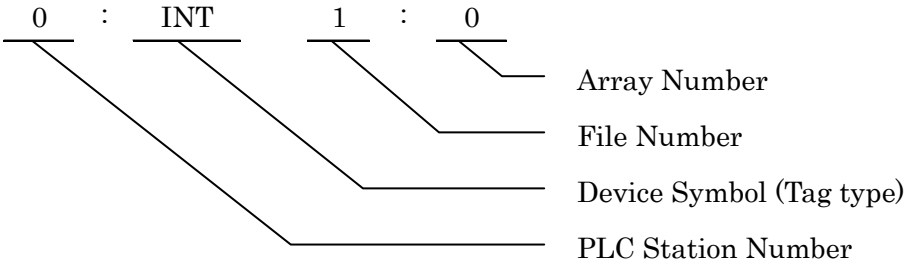
Tag name	Type	Array
Tag_A	INT	[10]
Tag_B	SINT	[10]
Tag_C	DINT	[10]
Tag_D	REAL	[10]

* Must define SINT type's tag with couple of byte.

2. Do mapping tag to File Number.

Tag name	Type	Array		File Number
Tag_A	INT		-	1
Tag_B	SINT	[10]	-	2
Tag_C	DINT	[10]	-	3
Tag_D	REAL	[10]	-	4

3. Set device address in WindO/I-NV2 software.



4.6.4 Setting Example for WindO/I-NV2

Refer to the following about setting example for WindO/I-NV2 software.
(PLC station number is 0 in the example.)

*The setting example use Allen-Bradley device address format.

Tag name	Type	Array		File Number
Tag_A	INT		-	1
Tag_B	SINT	[10]	-	2
Tag_C	DINT	[10]	-	3
Tag_D	REAL	[10]	-	4

Example1: Set an array number 0 in Tag_A.
0: INT 1:0

Example2: Set an array number 5 in Tag_B.
0: SINT 2:5

Example3: Set a lower word on array number 3 in Tag_C.
0: DINT 3:3_0

Example4: Set an upper word on array number 9 in Tag_D.
0: REAL 4:10_1

Note:
Need to set upper word or lower word in WindO/I-NV2 software when use 32 bit device.
Add "_0" after array number when use lower word.
Add "_1" after array number when use upper word.

5 SIEMENS

5.1 Connection Table

5.1.1 Compatible PLCs

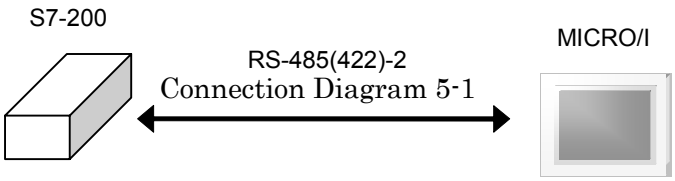
Manufacturer	Series Name	System (CPU unit)	Link Unit	WindO/I-NV2 Setting Name		
				Interface	Flow Control	Host I/F Driver
SIEMENS	S7-200	CPU212 CPU214 CPU215 CPU216 CPU221 CPU222 CPU224 CPU224XP CPU226 CPU226XM	Not required (connects to CPU unit directly)	RS-485 (422)-2 (Connection Diagram 5-1)	None	S7-200 (PPI)
	S7-300	CPU 313 CPU 314 CPU 315 CPU 315-2DP CPU 316 CPU 318	CP-340 CP-341	RS-232C (Connection Diagram 5-2)	Hardware	S7-300 3964(R)/ RK512
				RS-485 (422)-2 (Connection Diagram 5-3)	None	
	S7-400	CPU 412 CPU 414 CPU 416 CPU 416F-2 CPU 417	CP-440 CP-441	RS-232C (Connection Diagram 5-2)	Hardware	
				RS-485 (422)-2 (Connection Diagram 5-3)	None	

* We tested with the PLC of underline part.

5.2 System Configuration

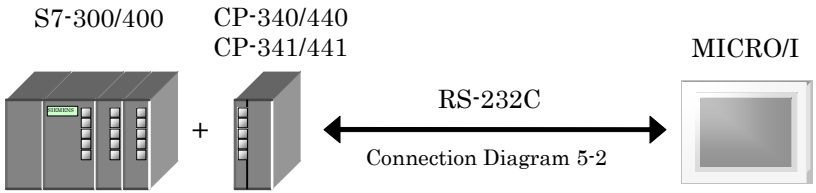
The following document explains the connection of SIEMENS PLCs to MICRO/I screens.

5.2.1 S7-200



Connects to Serial port of CPU unit.

5.2.2 S7-300/400



5.3 Connection Diagram

The connector types given in the Connection Diagrams are for the unit and not the cable. For details regarding wiring, refer to "3 Important Points Regarding Wiring" in Chapter 1.

Connection Diagram 5-1: S7-200 (RS-485) to MICRO/I

PLC(RS-485/422)

Pin No.	Name
	FG
1	LC
2	LC
3	SIG-B
4	NC
5	LC
6	+5V
7	+24V
8	SIG-A
9	NC

D-sub, 9P socket connector
(plug side)

Shield Wire

HG1F/2F/2S/3F/4F(RS-485/422)

Name	Pin No.			
	HG1F Connector	HG1F Terminal	HG2F/ 3F/4F	HG2S
FG	Cover	-	1	1
TERM	-	-	9	-
RDA(RD+)	2	3	10	32
RDB(RD-)	7	4	16	33
SDA(SD+)	1	1	11	30
SDB(SD-)	6	2	15	31
CS-	9	-	18	37
RS-	8	-	19	35
CS+	4	-	21	36
RS+	3	-	22	34
SG	5	5	7	29

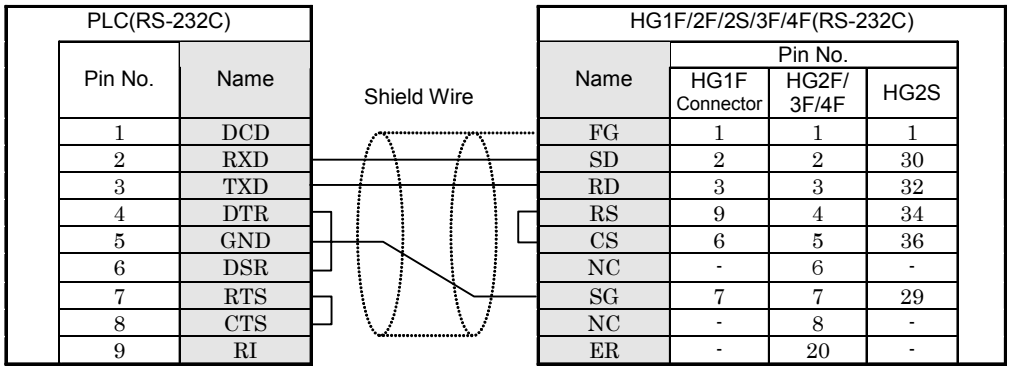
Internal termination resistor 330-Ohm

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

- It is also possible to connect multiple PLCs and multiple MICRO/Is on the same network.
- Please short-circuit the RDA and SDA of MICRO/I and connect to SIG-B of PLC.
- Please short-circuit the RDB and SDB of MICRO/I and connect to SIG-A of PLC.
- Refer to S7-200 manual for restrictions when using multi-drops.
- When using multiple PLCs to communicate to multiple MICRO/Is, it will take extra time to establish communication between PLCs and OIs.

- There is no pin No. corresponding to TERM on the HG1F/HG2S. When inserting a termination resistor, use a communication switch. For the setting of the switch, refer to "3 Important Points Regarding Wiring" in Chapter 1.

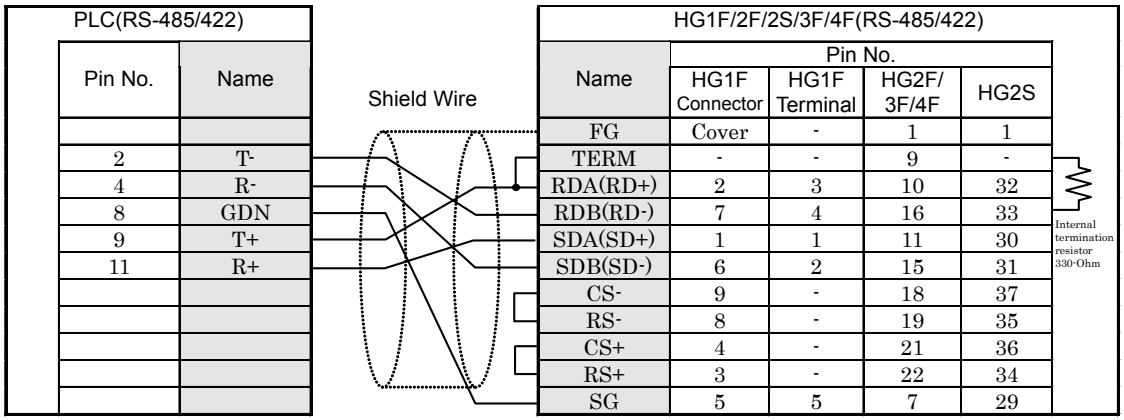
Connection Diagram 5-2: S7-300/S7-400 (RS-232C) to MICRO/I



D-sub, 9P connector socket type

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

Connection Diagram 5-3: S7-300/S7-400 to MICRO/I



D-sub, 15P connector socket type

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

- There is no pin No. corresponding to TERM on the HG1F/HG2S. When inserting a termination resistor, use a communication switch. For the setting of the switch, refer to "3 Important Points Regarding Wiring" in Chapter 1.

5.4 Environment Settings

5.4.1 S7-200

The communication port settings for S7-200 and MICRO/I host port are as follows.

Items	Details
PLC Address	1 to 126(Dec)　(0 to 7e (Hex)) Set the value to same value as ADDRESS(PLC) in WindO/I-NV2.
Highest Address (Highest Station Address)	1 to 126(Dec)　(0 to 7e(Hex)) Set the value to same value as HSA in WindO/I-NV2.
Baud Rate(bps)	9600 / 19200 Set the value to same value as Baud Rate in WindO/I-NV2.
HG Address	0 to 7e (Hex)　(0 to 126(Dec)) Set the value as ADDRESS(HG) in WindO/I-NV2.
Data Bits(bit)	8 (fixed) Set the value in WindO/I-NV2.
Parity	EVEN (fixed) Set the value in WindO/I-NV2.
Stop bit(bit)	1 (fixed) Set the value in WindO/I-NV2.

- Set the communication port that communicates with MICRO/I to PPI/Slave mode. Please make sure to set SMB30 or SMB130 values to 0 in order to select proper communication port settings. Refer to the manual of S7-200 for details.

- We checked the following problems in some versions of S7-200.
  When S7-200 is set as the master and the address of S7-200 is the same as HSA, token path does not work correctly.
  This problem can be solved by setting HSA as a larger value than Address actually used.
  This problem does not occur when one MICRO/I is connected to one S7-200 PLC.

5.4.2 S7-300/S7-400

The communication port settings for S7-300 and MICRO/I host port are as follows.

Items		Details
Serial Interface	Use the same settings as for the MICRO/I.	RS-232C
Baud Rate (bps)		1200/2400/4800/9600/19200/38400
Data Bits (bit)		8 (Fixed)
Parity		Even/Odd/None
Stop Bits (bit)		1/2
BCC		Enable/Disable
Priority		Low

MICRO/I type performs communication based on 3964 (R) and RK512 protocol.
CP340 is supporting only the 3964 and 3964R protocol. Therefore when using CP340, it is necessary to construct the program to realize RK512 protocol in PLC. This is programmed using the function blocks FB2 and FB3, in SIEMENS PLC.

CP341 is supporting 3964 (R) and RK512 protocol, please choose RK512 by setup PLC.

The program of CP340 refer to a sample program.
The sample program is recorded on CD-ROM after Wind O/I NV2 Ver2.50.
Please refer to the following folder.
(Wind O/I NV2 CD-ROM) /Sample/Host_if/SIEMENS/
Downloading from our Website is possible.

5.5 Usable Devices

5.5.1 S7-200

・ Bit Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Variable memory	V	V	0 - 102397	R/W	(*1)
Process-image-input-register	I	I	0 - 157	R	(*1)
Process-image-output-register	Q	Q	0 - 157	R/W	(*1)
Bit memory	M	M	0 - 317	R/W	(*1)
Special Memory	SM	SM	0 - 5497	R	(*1)
Timer (Bit)	T	T	0 - 255	R	Dec
Counter (Bit)	C	C	0 - 255	R	Dec
Sequential control relay	S	S	0 - 317	R/W	(*1)

・ Word Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Variable memory	VW	VW	0 - 10238	R/W	(*2)
Timer (Current Value)	TW	T	0 - 255	R/W	Dec
Counter (Current Value)	CW	C	0 - 255	R/W	Dec
Process-image-input-register	IW	IW	0 - 14	R	(*2)
Process-image-output-register	QW	QW	0 - 14	R/W	(*2)
Bit memory	MW	MW	0 - 30	R/W	(*2)
Special Memory	SMW	SMW	0 - 548	R	(*2)
Analog input	AIW	AIW	0 - 62	R	(*2)
Analog output	AQW	AQW	0 - 62	R/W	(*2)
Sequential control relay	SW	SW	0 - 30	R/W	(*2)
High speed counter	HC	HC	0 - 51	R	(*3)

- The devices (V, I, Q, M, SM, S) which include a period in the address in S7-200 are written without a period in MICRO/I.
- For example, V10.1 is written as V101 in MICRO/I.
- AC(Accumulator registers),L(Local memory) of PLC Devices can not use in MICRO/I.

The value of High speed counter which is a double word value is divided into two, and is treated as WORD device in MICRO/I.
The higher word is written by adding 0 to the lowest digit of the address, the lower word is written by adding 1 to the lowest digit of the address.
For example, the lower word of HC1 is written as HC11 in MICRO/I.
If you read in a double word value, The lowest digit of the address write 0 . For example, HC2 is written as HC20 in MICRO/I.

(*1) The 1st figure is written with the number of octal number,
and the 2nd [or more] figure is written with the number of decimal.
(*2) Only even number can be specified.
(*3) The 1st figure is written with the number of binary number,
and the 2nd [or more] figure is written with the number of decimal.

5.5.2 S7-300/S7-400

When using CP-341/441, following devices can be read and written.
When using CP-340440, only a data block (DB) can be read and written.

・ Bit Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Input (Bit)	I	I	0 - 1277	R	(*1)
Output (Bit)	Q	Q	0 - 1277	R	(*1)
Memory (Bit)	M	M	0 - 2557	R	(*1)

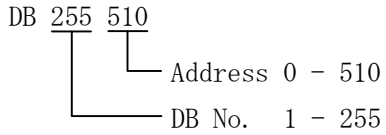
・ Word Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Input (Word)	IW	IW	0 - 126	R	(*2)
Output (Word)	QW	QW	0 - 126	R	(*2)
Bit Memory (Word)	MW	MW	0 - 254	R	(*2)
Timer cell	T	T	0 - 127	R	Dec
Counter cell	C	C	0 - 63	R	Dec
Data Block	DB	DB	1000 - 255510	R/W	(*2) (*3)

(*1) The 1st figure is written in octal number format,
and the 2nd [or more] figure is written in decimal number format.

(*2) Only an even number can be specified.

(*3) Please specify in the following ranges.



- When a non activated data block is accessed in the PLC, a communication error will occur. Please be sure to activate relevant data blocks in the PLC.
- Endians differ in S7-300, and MICRO/I type. Please use neither bit specification of a WORD device, nor 32-bit WORD (double WORD).

6 Keyence

6.1 Connection Table

6.1.1 Compatible PLCs

Manufacturer	Series Name	System (CPU unit)	Link unit	WindO/I-NV2 Setting Name		
				Interface	Flow Control	Host I/F Driver
Keyence	KV-700/1000	KV-700 KV-1000	Not required (connects to CPU unit)	RS-232C (Connection Diagram 6-1)	ER control	KV-700/1000
			KV-L-20R	RS-232C(PORT1) (Connection Diagram 6-2)		
				RS-232C(PORT2) (Connection Diagram 6-3)		
				Cable for RS-422/485-4 (Connection Diagram 6-4)		
				Cable for RS-422/485-2 (Connection Diagram 6-5)		
	Visual KV(*1)	KV-10,16,24,40	Not required (connects to CPU unit)	RS-232C (Connection Diagram 6-1)	None	KV/KZ
	Conventional KV	KV-10, 16, 24, 40/80				

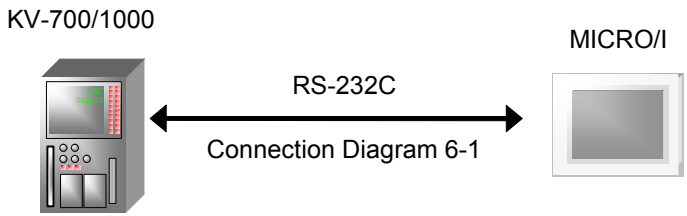
* We tested with the PLC of underline part.

(*1) MICRO/I does not correspond to all the Visual KV series.

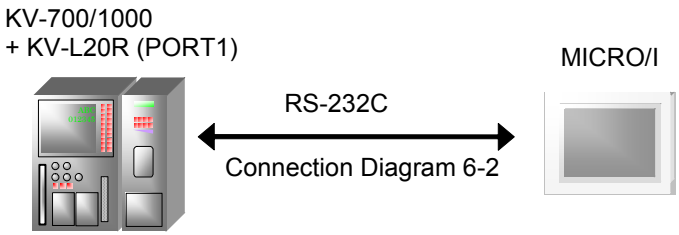
6.2 System Configuration

This is the system configuration for connection of Keyence PLCs to the MICRO/I.

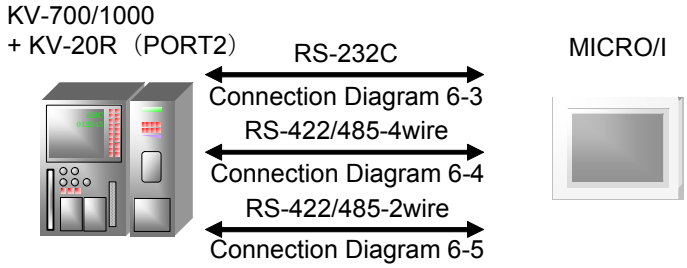
6.2.1 Connection to the CPU unit modular connector for KV-700/1000



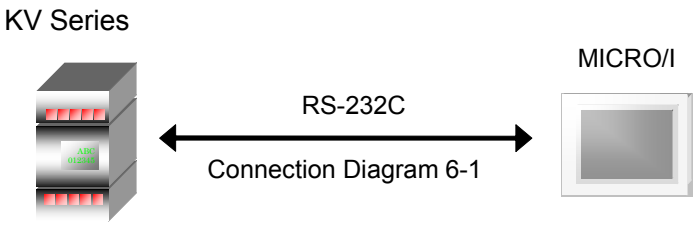
6.2.2 Connection to the D-sub, 9P connector plug type for KV-20R



6.2.3 Connection to the terminal block for KV-20R



6.2.4 Connection to the CPU unit modular connector for KV/KZ series



6.3 Connection Diagram

The connector types given in the Connection Diagrams are for the unit and not the cable. For details regarding wiring, refer to "3 Important Points Regarding About Wiring" in Chapter 1.

Connection Diagram 6-1: KV-700/1000, Conventional KV to MICRO/I

PLC(RS-232C)	
Pin No.	Name
1	
2	
3	RD
4	SG
5	SD
6	

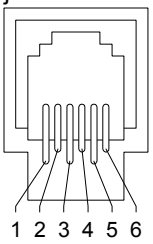
Modular connector

Shield Wire

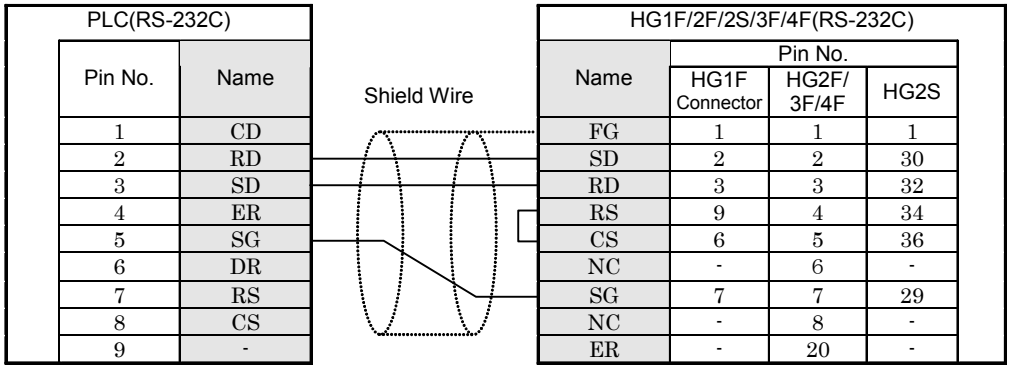
HG1F/2F/2S/3F/4F(RS-232C)			
Name	Pin No.		
	HG1F Connector	HG2F/ 3F/4F	HG2S
FG	1	1	1
SD	2	2	30
RD	3	3	32
RS	9	4	34
CS	6	5	36
NC	-	6	-
SG	7	7	29
NC	-	8	-
ER	-	20	-

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

Connector Pin Layout for PLC side Modular jack



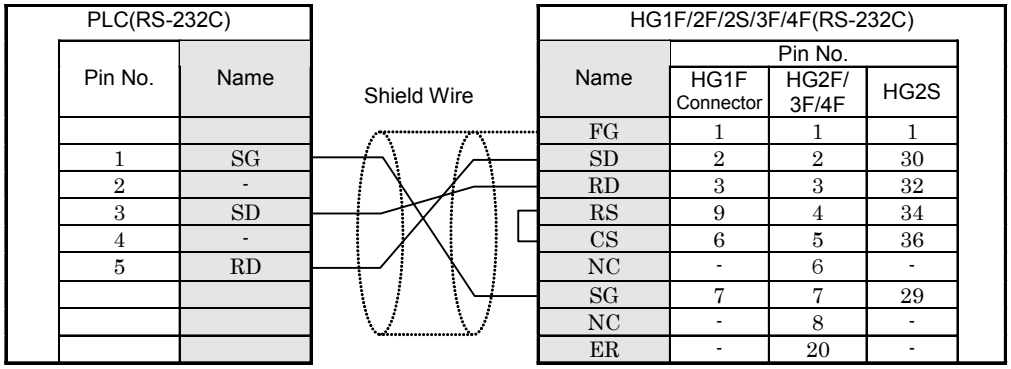
Connection Diagram 6-2:KV-700/1000 + KV-20R(PORT1) to MICRO/I



D-sub, 9P connector plug type

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

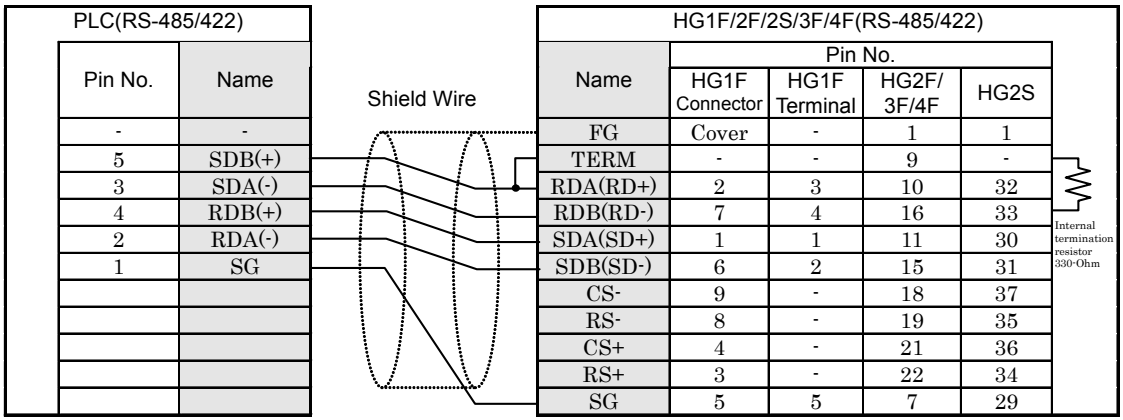
Connection Diagram 6-3: KV-700/1000 + KV-20R (PORT2-RS-232C) to MICRO/I



Screw terminal block

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

Connection Diagram 6-4: KV-700/1000 + KV-20R (PORT2-RS-422A/485-4wire) to MICRO/I



Screw terminal block

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

- There is no pin No. corresponding to TERM on the HG1F/HG2S. When inserting a termination resistor, use a communication switch. For the setting of the switch, refer to "3 Important Points Regarding Wiring" in Chapter 1.

Connection Diagram 6-5: KV-700/1000 + KV-20R (PORT2-RS-485-2wire) to MICRO/I

PLC(RS-485/422)

Pin No.	Name
-	-
5	S/R(+)
3	S/R(-)
4	S/R(+)
2	S/R(-)
1	SG

Screw terminal block

Shield Wire

HG1F/2F/2S/3F/4F(RS-485/422)

Name	Pin No.			
	HG1F Connector	HG1F Terminal	HG2F/ 3F/4F	HG2S
FG	Cover	-	1	1
TERM	-	-	9	-
RDA(RD+)	2	3	10	32
RDB(RD-)	7	4	16	33
SDA(SD+)	1	1	11	30
SDB(SD-)	6	2	15	31
CS-	9	-	18	37
RS-	8	-	19	35
CS+	4	-	21	36
RS+	3	-	22	34
SG	5	5	7	29

Internal termination resistor 330-Ohm

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

- There is no pin No. corresponding to TERM on the HG1F/HG2S. When inserting a termination resistor, use a communication switch. For the setting of the switch, refer to "3 Important Points Regarding Wiring" in Chapter 1.

6.4 Environment Settings

6.4.1 KV-700/1000, Conventional KV Series

Item	Setting
Communication Device Number	RS-232C
Data Bits	8
Baud Rate (bps)	9600
Parity	Even
Stop Bits	1

- Communication parameters are fixed. Please select above-mentioned settings for proper communication
- Refer to the PLC manual for details.
- When you communicate with CPU unit for KV-700, check the check box of "Connect CPU Unit (Enable)/Link Unit (Disable)" for the communication setting.

6.4.2 Environment settings for connection to the KV-1000

Item	Setting
Transmission method	RS-232C
Baud rate（bps）	9600/19200/38400/57600/115200
Data length（bit）	8
Parity	Even
Stop bit（bit）	1

- See the operation manual of PLC for more information.
- When setting the baud rate to less than 4800 bps, the communications was executed at the baud rate of 9600 bps.
- When you communicate with CPU unit for KV-1000, check the check box of "Connect CPU Unit (Enable)/Link Unit (Disable)" for the communication setting.

6.4.3 Environment settings for connection to the KV-700/1000 + KV-20R

Item	Setting
Transmission method	RS-232C, RS-422/485 2-wire type, RS-422/485 4-wire type
Baud rate (bps)	1200/2400/4800/9600/19200/38400/57600/115200
Data length (bit)	8
Parity	Even
Stop bit (bit)	1

- See the operation manual of PLC for more information.
- When you communicate with communication unit for KV-20R, uncheck the check box of "Connect CPU Unit (Enable)/Link Unit (Disable)" for the communication setting.

6.5 Usable Devices

6.5.1 KV-700/1000

・ Bit Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Input Relay	X	-	0 - 15	R	
Output Relay	Y	-	500 - 507	R/W	
Internal Relay	M	-	504 - 915	R/W	
Exp./Spec. Internal Relay	R	-	1000 - 59915	R/W	
Exp Int. Relay	MR	MR	0 - 99915	R/W	
Latch Relay	LR	LR	0 - 99915	R/W	
Control Relay	CR	CR	0 - 3915	R/W	(*2)
Timer (Relay)	T	T	0 - 3999	R/W	
Counter (Relay)	C	C	0 - 3999	R/W	
High-speed counter comparator (Relay)	CTC	CTC	0 - 3	R/W	

・ Word Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Timer (Preset)	TS	T	0 - 39991	R	(*1)
Timer (Current)	TC	T	0 - 39991	R	(*1)
Counter (Preset)	CS	C	0 - 39991	R	(*1)
Counter (Current)	CC	C	0 - 39991	R	(*1)
High-speed counter (Current)	CTH	TCH	00 - 11	R	(*1)
High-speed counter comparator (Preset)	CTCS	CTC	00 - 31	R	(*1)
Data Memory	DM	DM	0 - 65534	R/W	
Exp Data Memory E	EM	EM	0 - 65534	R/W	
Exp Data Memory F	FM	FM	0 - 32766	R/W	
Temporary Memory	TM	TM	0 - 511	R/W	
Control Memory	CM	CM	0 - 11998	R/W	(*2)
Index Resistor	Z	Z	1 - 12	R/W	

(*1) These devices are 32-bit devices.

When using these devices, please add an extra Zero to the PLC address as shown below.

Ex: In case of setting Timer (Preset)

PLC: T511, WindO/I-NV2: T5110

(*2) Some addresses are read only devices. Refer to the PLC manual for details.

(*3)R/W: Read and Write device, R: Read only device

- Only a reset action is possible for a High-speed counter comparator (Relay).
- If set operation is performed, since a communication error will occur, please do not use it.
- The address range is dependant on the PLC model. Refer to the PLC manual for details.

6.5.2 Visual KV/Conventional KV Series

・ Bit Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Basic Input Relay	X	-	0 - 215	R	
Basic Output Relay	Y	-	500 - 615	R/W	
Internal Utility Relay	M	-	1000 - 1915, 3000 - 15915	R/W	
Extension Input Relay	SX	-	100 - 415	R	
Extension Output Relay	SY	-	600 - 915	R/W	
Timer (Contact)	T	T	0 - 249	R	
Counter (Contact)	C	C	0 - 249	R	
Special Internal Relay	SM		2000 - 2915	R/W	(*1)

・ Word Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Timer (Preset)	TS	TS	0 - 249	R/W	
Timer (Current)	TC	TC	0 - 249	R/W	
Counter (Preset)	CS	CS	0 - 249	R/W	
Counter (Current)	CC	CC	0 - 249	R/W	
Data Memory	D	D	0 - 9999	R/W	
Temporary Memory	TM	TM	0 - 31	R/W	(*1)

(*1) Refer to the PLC manual for read/write limitations.

(*2) R/W: Read and Write device, R: Read only device

- The address range is dependant on the PLC model. Refer to the PLC manual for details.
- MICRO/I does not correspond to all the Visual KV series.

7.SHARP

7.1 Connection Table

7.1.1 Compatible PLCs

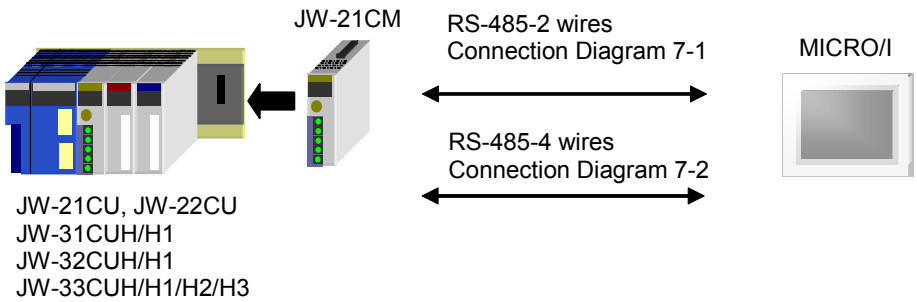
Manufacturer	Series Name	System (CPU unit)	Link unit	WindO/I-NV2 Setting Name		
				Interface	Flow Control	Host I/F Driver
SHARP	New Satellite JW	JW-10	Not required (connects to CPU unit)	RS-422-MMI Port (Connection Diagram 7-6)	ER control	JW
				RS-485 (Connection Diagram 7-7)		
		JW-21CU JW-22CU JW-31CUH/H1 JW-32CUH/H1 JW-33CUH/H1/H2/H3	JW-21CM	RS-485 (422) 2 wires (Connection Diagram 7-1)		
				RS-485 (422) 4 wires (Connection Diagram 7-2)		
		JW-50CU/CUH JW-70CU/CUH JW-100CU/CUH	JW-10CM	RS-485 (422) 4 wires (Connection Diagram 7-2)		
		JW-22CU JW-70CU/CUH JW-100CU/CUH	Not required (connects to CPU unit)	RS-232C (Connection Diagram 7-3)		
		JW-32CUH/H1 JW-33CUH/H1/H2/H3		RS-232C (Connection Diagram 7-4)		
				RS-485 (422) 4 wires (Connection Diagram 7-5)		

* We tested with the PLC of underline part.

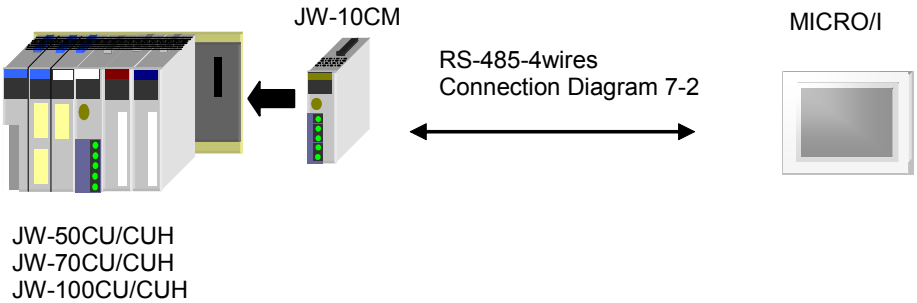
7.2 System Configuration

This is the system configuration for connection of SHARP PLCs to the MICRO/I.

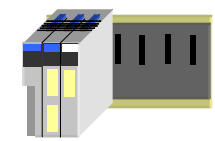
7.2.1 JW20/30 Series (using link module)



7.2.2 JW50/70/100 Series (using link module)



7.2.3 JW50/70/100 Series (using communication port)



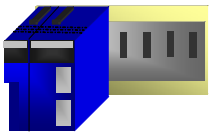
JW-22CU
JW-70CU/CUH
JW-100CU/CUH

RS-232C
Connection Diagram 7-3

MICRO/I

Connect to the communication port of CPU unit.

7.2.4 JW30 Series (using communication port)



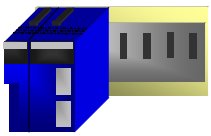
JW-32CUH/H1
JW-33CUH/H1/H2/H3

RS-232C
Connection Diagram 7-4

MICRO/I

Connect to the communication port2 of CPU unit.

7.2.5 JW30 Series (using communication port)



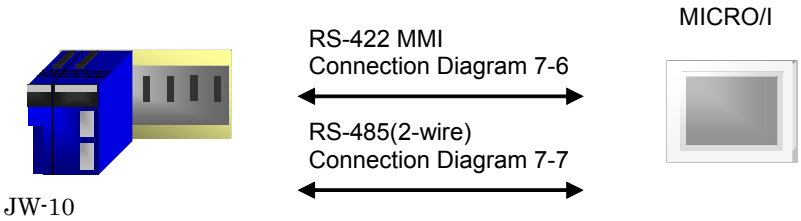
JW-32CUH/H1
JW-33CUH/H1/H2/H3

RS-485
Connection Diagram 7-5

MICRO/I

Connect to the communication port1 or the communication port2 of CPU unit.

7.2.6 JW10 Series

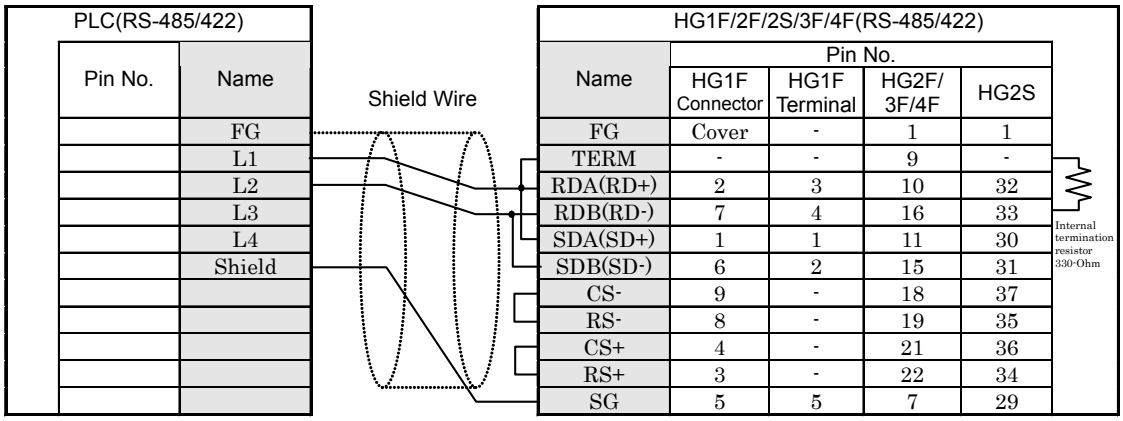


Connect to MMI port or communication port on CPU unit.

7.3 Connection Diagram

The connector types given in the Connection Diagrams are for the unit and not the cable. For details regarding wiring, refer to "3 Important Points Regarding About Wiring" in Chapter 1.

Connection Diagram 7-1: RS-485 Link Unit to MICRO/I



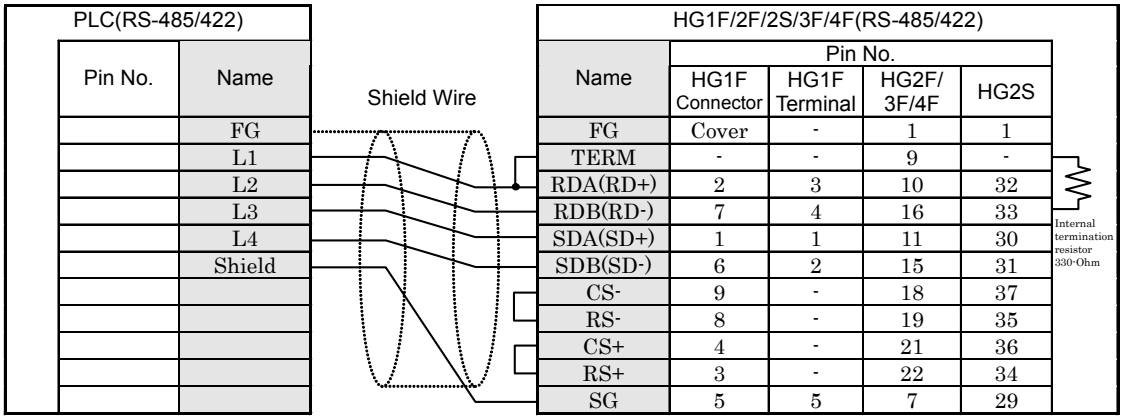
Screw terminal block

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

- We recommend that you switch on the termination resistor on the PLC Link Unit side for long-distance transmission connection cable is available.
- There is no pin No. corresponding to TERM on the HG1F/HG2S. When inserting a termination resistor, use a communication switch. For the setting of the switch, refer to "3 Important Points Regarding Wiring" in Chapter 1.

WARNING When you use the Terminal Block type of HG1F, make sure to configure the Hardware Flow control to NONE because the HG1F doesn't have control lines.

Connection Diagram 7-2: RS-485 Link Unit to MICRO/I



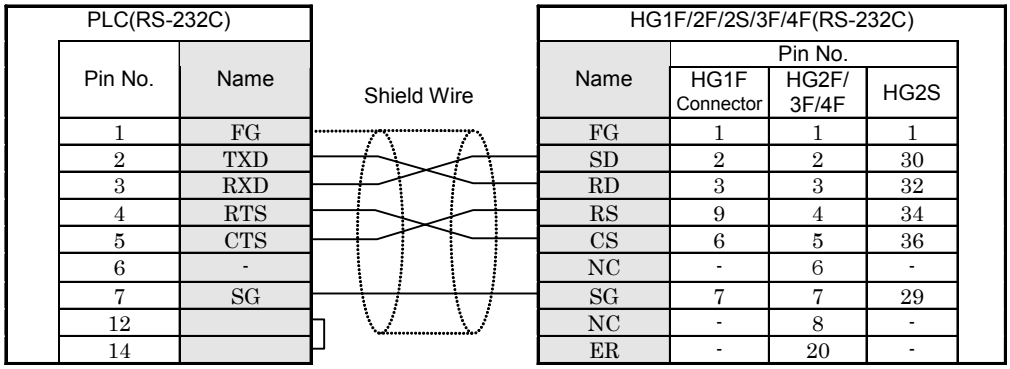
Screw terminal block

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

- We recommend that you switch on the termination resistor on the PLC Link Unit side for long-distance transmission connection cable is available.
- There is no pin No. corresponding to TERM on the HG1F/HG2S. When inserting a termination resistor, use a communication switch. For the setting of the switch, refer to "3 Important Points Regarding Wiring" in Chapter 1.

WARNING When you use the Terminal Block type of HG1F, make sure to configure the Hardware Flow control to NONE because the HG1F doesn't have control lines.

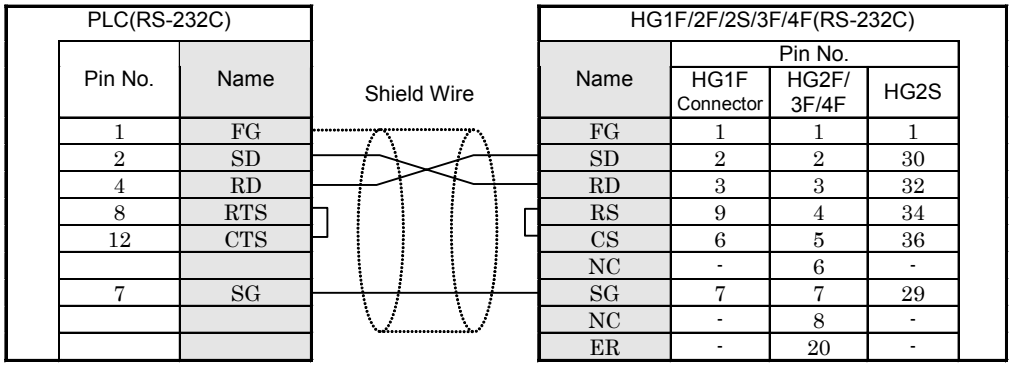
Connection Diagram 7-3: PLC(RS-232C) Communication Port to MICRO/I



D-sub, 15P connector socket type

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

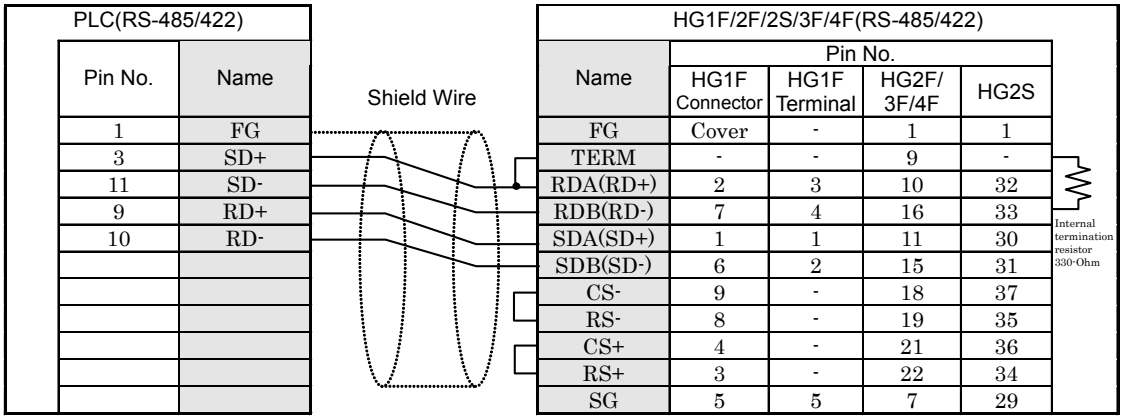
Connection Diagram 7-4: PLC(RS-232C) Communication Port to MICRO/I



D-sub, 15P connector socket type

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

Connection Diagram 7-5: PLC(RS-485) Communication Port to MICRO/I



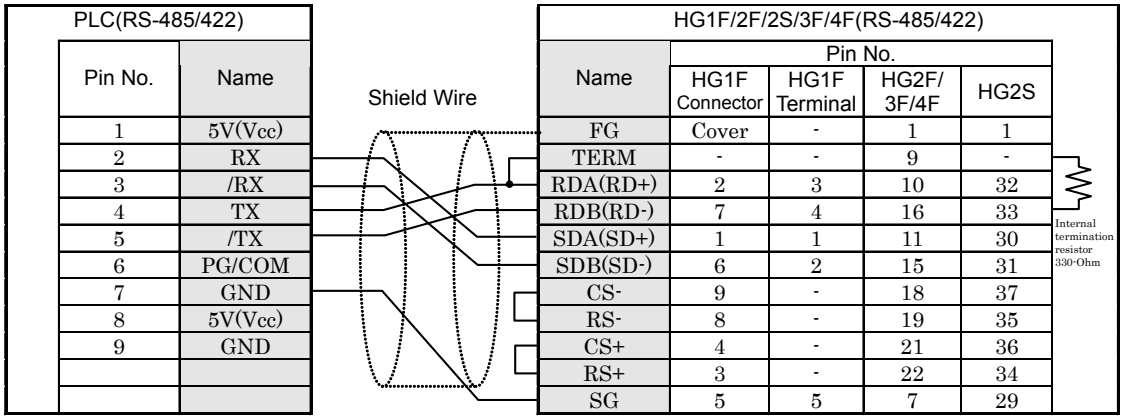
D-sub, 25P connector socket type

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

- There is no pin No. corresponding to TERM on the HG1F/HG2S. When inserting a termination resistor, use a communication switch. For the setting of the switch, refer to "3 Important Points Regarding Wiring" in Chapter 1.

WARNING When you use the Terminal Block type of HG1F, make sure to configure the Hardware Flow control to NONE because the HG1F doesn't have control lines.

Connection Diagram 7-6: JW-10 MMI Port(RS-422) to MICRO/I



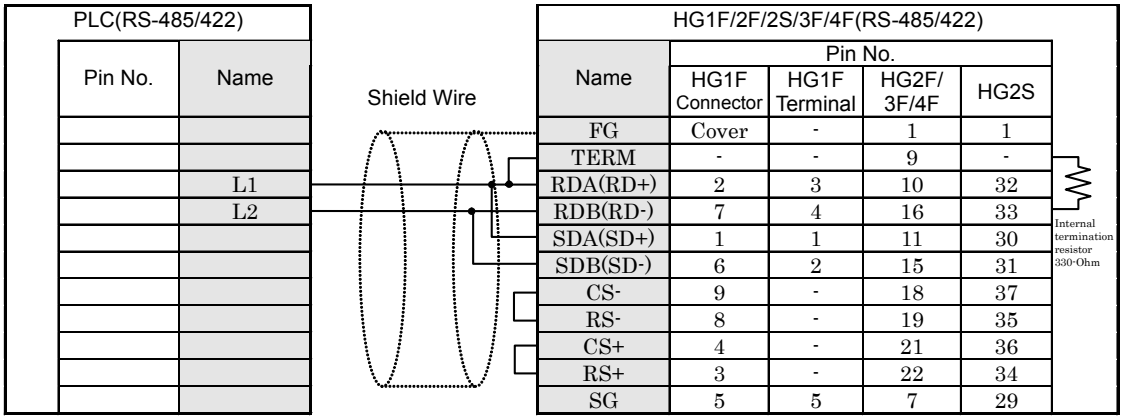
D-sub, 9P connector socket type

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

- There is no pin No. corresponding to TERM on the HG1F/HG2S. When inserting a termination resistor, use a communication switch. For the setting of the switch, refer to "3 Important Points Regarding Wiring" in Chapter 1.

WARNING When you use the Terminal Block type of HG1F, make sure to configure the Hardware Flow control to NONE because the HG1F doesn't have control lines.

Connection Diagram 7-7: JW-10 Communication Port (RS-485) to MICRO/I



Terminal

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

- There is no pin No. corresponding to TERM on the HG1F/HG2S. When inserting a termination resistor, use a communication switch. For the setting of the switch, refer to "3 Important Points Regarding Wiring" in Chapter 1.

WARNING When you use the Terminal Block type of HG1F, make sure to configure the Hardware Flow control to NONE because the HG1F doesn't have control lines.

7.4 Environment Settings

7.4.1 Using Computer Link Module

Item		Setting	
Communication Method		RS-485-2 wires (Set DIP switch SW3-2 to OFF)	RS-485-4 wires (Set DIP switch SW3-2 to ON)
Communication Mode		Computer Link (Command mode) (Set DIP switch SW0 to "4")	
Station No.	Set to the same setting as the MICRO/I	01 to 17(oct) (Set DIP switch SW1 / SW2)	
Data Bits[bit]		7(fixed)	
Baud Rate [bps]		1200/2400/4800/9600/19200 (Set DIP switch SW4)	
Parity		Even / Odd (Set DIP switch SW3-4)	
Stop Bits[bit]		2(fixed)	

7.4.2 Using Communication Port

Item		Setting	
Communication Method		RS-232C	RS-485(422)
Station No.	Set to the same setting as the MICRO/I	001 to 037(oct) (Set System Memory #235/#237)	
Data Bits[bit]		7(fixed)	
Baud Rate [bps]		1200/2400/4800/9600/19200/38400/57600/115200 (Set the bit position $D_2D_1D_0$ System Memory of #234/#236)	
Parity		Even / Odd / None (Set the bit position D_4D_3 of System Memory #234/#236)	
Stop Bits [bit]		1/2 (Set the bit position D_5 of System Memory #234/#236)	

- Set System Memory #234 for communication conditions of PLC (JW30 Communication port1:RS-422), and set System Memory #235 for Station No..
- Set System Memory #236 for communication conditions of PLC(JW20/70/100 Communication port,JW30 Communication port2:RS-232C/RS-422), and set System Memory #237 for Station No..
- Confirm the PLC manuals as the speed of Baud Rate may not use according to PLC.

- When connecting with the communication port of a CPU unit and making it communicate, after receiving a response from PLC depending on the model of PLC, while MICRO/I transmit data, some which need waiting time are.
- In this time, please adjust [File]-[Project Settings]-[Host Port]-[transmission wait] of WindO/I-NV2.
- Confirm the manual.(chapter of a communication port) of PLC about whether a [transmitting weight] setup need to be adjusted.
- Refer to " New Satellite JW manual" or "New Satellite JW Link Unit manual" for details.

7.5 Usable Devices

The types of devices handles by the MICRO/I and their ranges are shown below.

Bit Device

WindO/I-NV2 Device Name	R/W	WindO/I-NV2 address	PLC Device Name	PLC address
Relay	R/W	R 0 to R 15777	Relay	00000 to 15777
Ext. Relay	R/W	ER 20000 to ER 75777		20000 to 75777
Timer(Contact)	R	T 0 to T 777	Timer(Contact)	T0000 to T0777
Ext. Timer(Contact)	R	ET 1000 to ET 1777		T1000 to T1777
Counter(Contact)	R	C 0 to C 777	Counter(Contact)	C0000 to C0777
Ext. Counter(Contact)	R	EC 1000 to EC 1777		C1000 to C1777

Word Device

WindO/I-NV2 Device Name	R/W	WindO/I-NV2 address	PLC Device Name	PLC address
Timer(Current Value)	R	TC 0 to TC 777	Timer (Current Value)	0000 to 0777
Ext.Counter(Current Value)	R	ETC 1000 to ETC 1777		1000 to 1777
Counter(Current Value)	R	CC 0 to CC 777	Counter (Current Value)	0000 to 0777
Ext.Counter(Current Value)	R	ECC 1000 to ECC 1777		1000 to 1777
Register(A)	R/W	RA 0 to RA 1576	Register	ㄱ 0000 to ㄱ 1576
Ext.Register(A)	R/W	ERA 2000 to ERA 7576		ㄱ 2000 to ㄱ 7576
Register(B)	R/W	RB 0 to RB 1776		b0000 to b1776
Ext.Register(B)	R/W	ERB 2000 to ERB 3776		b2000 to b3776
Register(09)	R/W	R09_ 0 to R09_ 776		09000 to 09776
Register(19)	R/W	R19_ 0 to R19_ 776		19000 to 19776
Register(29)	R/W	R29_ 0 to R29_ 776		29000 to 29776
Register(39)	R/W	R39_ 0 to R39_ 776		39000 to 39776
Register(49)	R/W	R49_ 0 to R49_ 776		49000 to 49776
Register(59)	R/W	R59_ 0 to R59_ 776		59000 to 59776
Register(69)	R/W	R69_ 0 to R69_ 776		69000 to 69776
Register(79)	R/W	R79_ 0 to R79_ 776		79000 to 79776
Register(89)	R/W	R89_ 0 to R89_ 776		89000 to 89776
Register(99)	R/W	R99_ 0 to R99_ 776		99000 to 99776
Register(E)	R/W	RE 0 to RE 1776		E0000 to E1776
Ext.Register(E)	R/W	ERE 2000 to ERE 7776		E2000 to E7776
System Memory	R	S 0 to S 2176	System Memory	#0000 to #2176
File Register(1)	R/W	F1_ 0 to F1_ 37776	File Register1	000000 to 037776
File Register(2)	R/W	F2_ 0 to F2_ 177776	File Register2	000000 to 177776
File Register(3)	R/W	F3_ 0 to F3_ 177776	File Register3	000000 to 177776

- Set all device using octal.
- Confirm the PLC manuals as device or device address may not use according to PLC.
- R/W specify Read and Write device. R specify Read only device.
- Word device address below “Register (A)” increase +2.(The other device increase +1.)
- Device address of WindO/I NV2 does not displayed as the number of figure used PLC.
  Example: if you set to “Register 19005” using WindO/I NV2,
  it set to not “R19_ 005” but “R19_5”.

8 Hitachi

8.1 Supported Programmable Logic Controllers

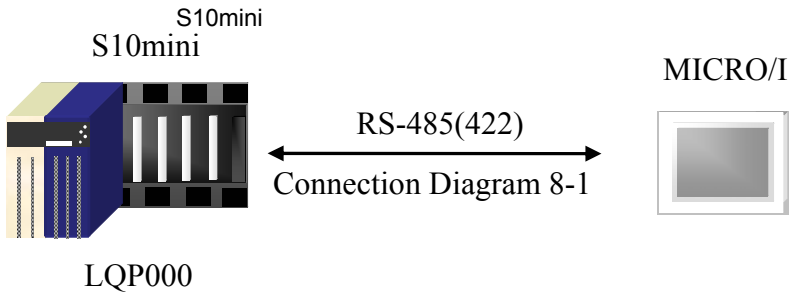
Manufacturer	Series Name	System (CPU unit)	Link unit	WindO/I-NV2 Setting Name		
				Interface	Flow control	Host I/F Driver
Hitachi	S10mini	S10mini	Not required (built into the CPU unit)	RS-485(422) 4wires (Connection Diagram 8-1)	ER control	S10mini
			LQE160	RS-232C (Connection Diagram 8-2)		
			LQE165	RS-485(422) 4wires (Connection Diagram 8-3)		
			LQE560	RS-232C (Connection Diagram 8-2)		
			LQE565	RS-485(422) 4wires (Connection Diagram 8-3)		
	S10V	LQP510	Not required (built into the CPU unit)	RS-232C (Connection Diagram 8-2)		
				RS-485(422) 4wires (Connection Diagram 8-3)		
			LQE560	RS-232C (Connection Diagram 8-2)		
			LQE565	RS-485(422) 4wires (Connection Diagram 8-3)		

* We tested with the PLC of underline part.

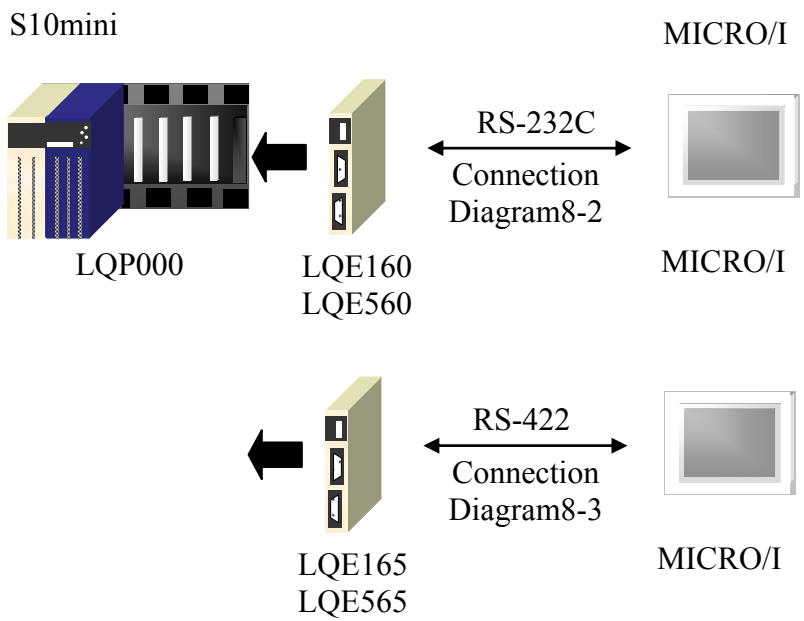
8.2 System Configuration

This is the system configuration for connection of Hitachi PLC to the MICRO/I.

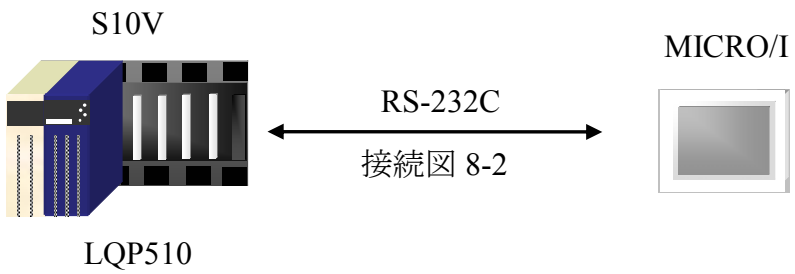
8.2.1 S10mini (LQP000) (connect to CPU unit RS-232C port)



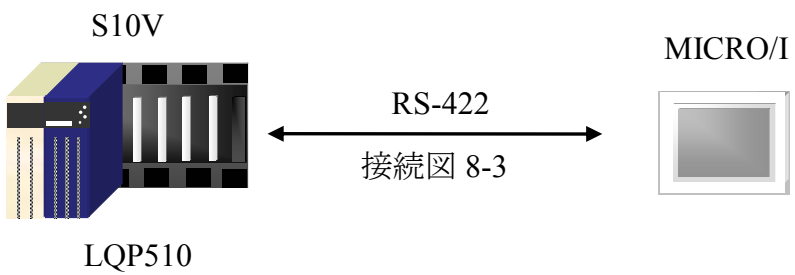
8.2.2 S10mini Communication module



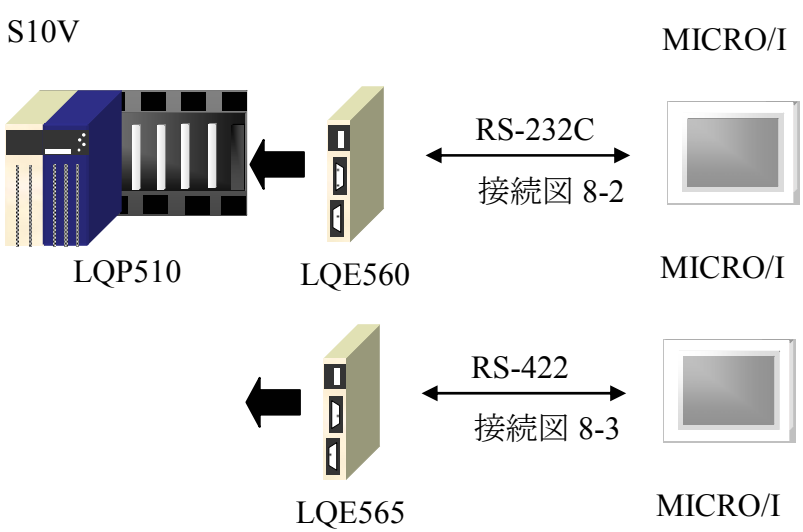
8.2.3 S10V RS-232C Port on CPU Unit



8.2.4 S10V RS-422 Port on CPU Unit



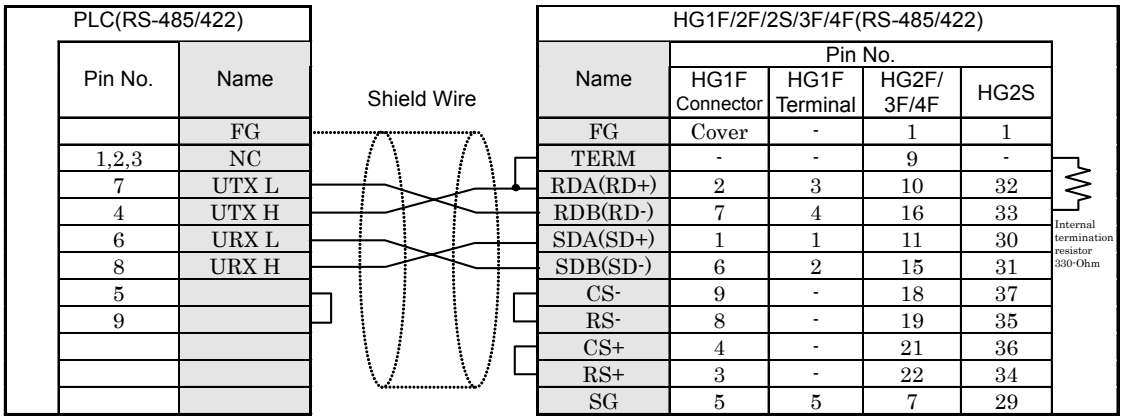
8.2.5 S10V Communication Module



8.3 Connection Diagram

The connector types given in the Connection Diagrams are for the unit and not the cable. For details regarding wiring, refer to "3 Important Points Regarding About Wiring" in Chapter 1.

Connection Diagram 8-1: S10mini (RS-485 (422)) to MICRO/I



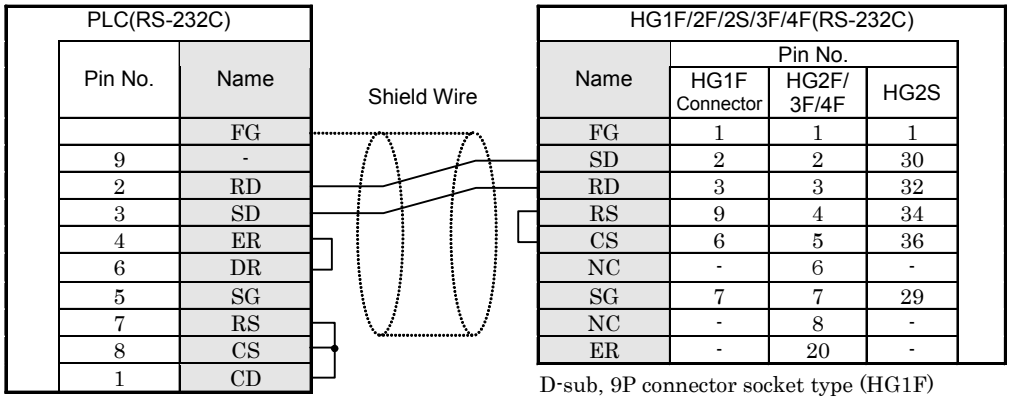
D-sub, 9P connector plug type

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

- There is no pin No. corresponding to TERM on the HG1F/HG2S. When inserting a termination resistor, use a communication switch. For the setting of the switch, refer to "3 Important Points Regarding Wiring" in Chapter 1.

WARNING When you use the Terminal Block type of HG1F, make sure to configure the Hardware Flow control to NONE because the HG1F doesn't have control lines.

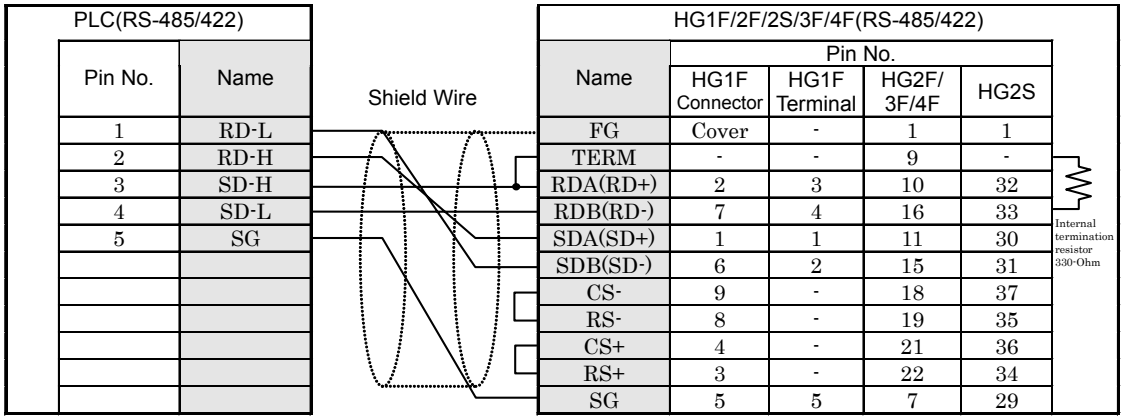
Connection Diagram 8-2: S10mini (RS-232C) to MICRO/I



D-sub, 9P connector plug type

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

Connection Diagram 8-1: S10mini (RS-485 (422)) to MICRO/I



D-sub, 9P connector plug type

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

- There is no pin No. corresponding to TERM on the HG1F/HG2S. When inserting a termination resistor, use a communication switch. For the setting of the switch, refer to "3 Important Points Regarding Wiring" in Chapter 1.

WARNING When you use the Terminal Block type of HG1F, make sure to configure the Hardware Flow control to NONE because the HG1F doesn't have control lines.

8.4 Environment Settings

8.4.1 S10mini, S10V

Item	Setting
Serial Interface	RS-232C , RS-485(422) 4wires
Baud Rate (bps)	19200
Data Bits (bit)	8
Parity	Odd
Stop Bits (bit)	1

Communication parameters are not flexible.
Refer to the PLC manual for details.

8.5 Usable Devices

・ Bit Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Input Relay	X	X	0 - 7FF	R/W	
Output Relay	Y	Y	0 - 7FF	R/W	
Internal Relay	R	R	0 - 7FF	R/W	
Global Link	G	G	0 - FFF	R/W	
System Register	S	S	0 - BFF	R	
E Word	BEW	EW	400 - FFF	R/W	
Event	E	E	0 - FF	R/W	
Keep Relay	K	K	0 - 1FF	R/W	
On-Delay Timer (contact)	T	T	0 - 1FF	R	
One Shot Timer (contact)	U	U	0 - 7F	R	
Up/Down Counter (contact)	C	C	0 - 3F	R	

・ Word Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Input Relay	XW	X	0 - 7F0	R/W	
Output Relay	YW	Y	0 - 7F0	R/W	
Internal Relay	RW	R	0 - 7F0	R/W	
Global Link	GW	G	0 - FF0	R/W	
System Register	SW	S	0 - BF0	R	
E Word	EW	EW	400 - FF0	R/W	
Event	WE	E	0 - F0	R/W	
Keep Relay	KW	K	0 - 1F0	R/W	
On-Delay Timer (contact)	TW	T	0 - 1F0	R	
One Shot Timer (contact)	UW	U	0 - 70	R	
Up/Down Counter (contact)	CW	C	0 - 30	R	
On-Delay Timer (elapsed value)	TC	T	0 - 1FF	R	
On-Delay Timer (setup value)	TS	T	0 - 1FF	R/W	
One Shot Timer (elapsed value)	UC	U	0 - 7F	R	
One Shot Timer (setup value)	US	U	0 - 7F	R/W	
Up/Down Counter (elapsed value)	CC	C	0 - 3F	R	
Up/Down Counter (setup value)	CS	C	0 - 3F	R/W	
Work Register	FW	FW	0 - BFF	R/W	
Data Register	DW	DW	0 - FFF	R/W	

*)When you use word device as bit device, the bit position reverses the order, as shown in the example.

Example:

specified address	read address
DW 0-0	DW 0-15
DW 0-1	DW 0-14
⋮	⋮
DW 0-14	DW 0-1
DW 0-15	DW 0-0

9 JTEKT(Toyoda)

9.1 Connection Table

9.1.1 Compatible PLCs

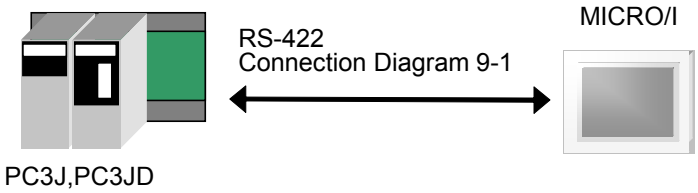
Manufacturer	Series Name	System (CPU unit)	Link Unit	WindO/I-NV2 Setting Name		
				Interface	Flow Control	Host I/F Driver
JTEKT(Toyoda)	TOYOPUC-PC2J	PC2J	Not required (connects to Built-in Link)	RS-485 (422)-2 (Connection Diagram 9-1)	Hardware	TOYOPUC-PC3J
	TOYOPUC-PC3J	PC3J PC3JD	Not required (connects to Built-in Link)	RS-485 (422)-2 (Connection Diagram 9-1)	Hardware	
		PC3JG	Not required (connects to Built-in Link)	RS-485 (422)-2 (Connection Diagram 9-2)	Hardware	

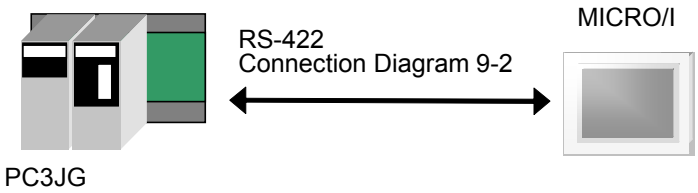
* We tested with the PLC of underline part.

9.2 System Configuration

This is the system configuration for connection of JTEKT(Toyoda) PLCs to the MICRO/I.

9.2.1 TOYOPUC-PC3J series (using the Built-in Link)





9.3 Connection Diagram

The connector types given in the Connection Diagrams are for the unit and not the cable.
For details regarding wiring, refer to "3 Important Points Regarding About Wiring" in Chapter 1.

Connection Diagram 9-1: TOYOPUC-PC3J,PC3JD (Built-in Link) - MICRO/I

PLC(RS-485/422)	
Pin No.	Name
	G
	L(+)
	L(-)
	0V

Double Shield

HG1F/2F/2S/3F/4F(RS-485/422)					
Name	Pin No.				
	HG1F Connector	HG1F Terminal	HG2F/ 3F/4F	HG2S	
FG	Cover	-	1	1	
TERM	-	-	9	-	Internal termination resistor 330-Ohm
RDA(RD+)	2	3	10	32	
RDB(RD-)	7	4	16	33	
SDA(SD+)	1	1	11	30	
SDB(SD-)	6	2	15	31	
CS-	9	-	18	37	
RS-	8	-	19	35	
CS+	4	-	21	36	
RS+	3	-	22	34	
SG	5	5	7	29	

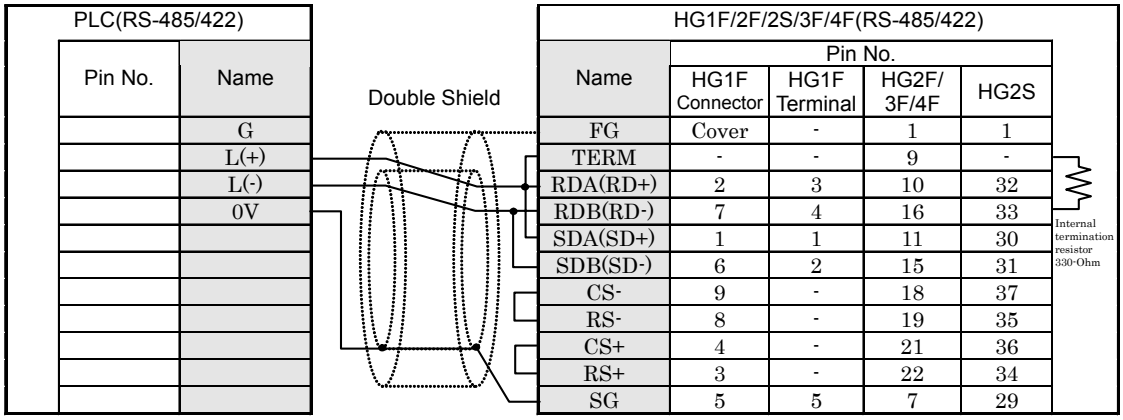
Screw Terminal

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

- There is no pin No. corresponding to TERM on the HG1F/HG2S. When inserting a termination resistor, use a communication switch. For the setting of the switch, refer to "3 Important Points Regarding Wiring" in Chapter 1.

WARNING When you use the Terminal Block type of HG1F, make sure to configure the Hardware Flow control to NONE because the HG1F doesn't have control lines.

Connection Diagram 9-2: TOYOPUC-PC3JG (Built-in Link) - MICRO/I



Screw Terminal

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

- There is no pin No. corresponding to TERM on the HG1F/HG2S. When inserting a termination resistor, use a communication switch. For the setting of the switch, refer to "3 Important Points Regarding Wiring" in Chapter 1.

WARNING When you use the Terminal Block type of HG1F, make sure to configure the Hardware Flow control to NONE because the HG1F doesn't have control lines.

9.4 Environment Settings

9.4.1 TOYOPUC-PC3J Series

Item	Setting
Interface	RS485(422)-2
Station No.	0-37 [set with octal number] (*1)
Data length (bit)	7/8
Communication Speed (bps)	1200/2400/4800/9600/19200/38400/57600
Parity	Even (fix)
Stop bit (bit)	1/2

(*1) Although a Station No. is the number of octal in PC3J, please set it up with the number of Hexadecimal by WindO/I-NV2.
For example, when set up with "37" in PC3J, please set up with "1F" in WindO/I-NV2.

- Please set the communication conditions of PC3J in the built-in standard link parameters.
- When the built-in standard link parameters are not set, the link acts as the computer link for below settings.
  - Communication Speed: 19200bps
  - Data length: 8bit
  - Stop bit: 1bit
  - Parity: Even
  - Station No.: 0

- Please refer to “JTEKT TOYOPUC PC3J CPU MODULE OPERATION MANUAL” for details.

9.5 Usable Devices

9.5.1 TOYOPUC-PC3J

・ Bit Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Input Relay	X	X	0 - 7FF	R/W	
Output Relay	Y	Y	0 - 7FF	R/W	
Internal relay	M	M	0 - 7FF	R/W	(*1)
Keep-relay	K	K	0 - 2FF	R/W	(*1)
Link relay	L	L	0 - 7FF	R/W	(*1)
Special relay	V	V	0 - FF	R/W	(*1)
Edge detection	P	P	0 - 1FF	R/W	(*1)
Timer contact	T	T	0 - 1FF	R	(*1)
Counter contact	C	C	0 - 1FF	R	(*1)
Internal relay	P3M	M	0 - 7FF	R/W	
Keep-relay	P3K	K	0 - 2FF	R/W	
Link relay	P3L	L	0 - 7FF	R/W	
Special relay	P3V	V	0 - FF	R/W	
Edge detection	P3P	P	0 - 1FF	R/W	
Timer contact	P3T	T	0 - 1FF	R	
Counter contact	P3C	C	0 - 1FF	R	
Internal relay	P2M	M	0 - 7FF	R/W	
Keep-relay	P2K	K	0 - 2FF	R/W	
Link relay	P2L	L	0 - 7FF	R/W	
Special relay	P2V	V	0 - FF	R/W	
Edge detection	P2P	P	0 - 1FF	R/W	
Timer contact	P2T	T	0 - 1FF	R	
Counter contact	P2C	C	0 - 1FF	R	
Internal relay	P1M	M	0 - 7FF	R/W	
Keep-relay	P1K	K	0 - 2FF	R/W	
Link relay	P1L	L	0 - 7FF	R/W	
Special relay	P1V	V	0 - FF	R/W	
Edge detection	P1P	P	0 - 1FF	R/W	
Timer contact	P1T	T	0 - 1FF	R	

Counter contact	P1C	C	0 - 1FF	R	
Extended input	EX	EX	0 - 7FF	R/W	
Extended output	EY	EY	0 - 7FF	R/W	
Extended Internal relay	EM	EM	0 - 1FFF	R/W	
Extended keep-relay	EK	EK	0 - FFF	R/W	
Extended link relay	EL	EL	0 - 1FFF	R/W	
Extended special relay	EV	EV	0 - FFF	R/W	
Extended edge detection	EP	EP	0 - FFF	R/W	
Extended timer contact	ET	ET	0 - 7FF	R	
Extended counter contact	EC	EC	0 - 7FF	R	
Extended input	GX	GX	0 - FFFF	R/W	(*4)
Extended output	GY	GY	0 - FFFF	R/W	(*4)
Extended Internal relay	GM	GM	0 - FFFF	R/W	(*4)

・ Word Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Input	WX	X	0 - 7F	R/W	
Output	WY	Y	0 - 7F	R/W	
Internal relay	WM	M	0 - 7F	R/W	(*1)
Keep-relay	WK	K	0 - 2F	R/W	(*1)
Link relay	WL	L	0 - 7F	R/W	(*1)
Timer contact	WT	T	0 - 1F	R	(*1)
Counter contact	WC	C	0 - 1F	R	(*1)
Present value register	N	N	0 - 1FF	R	(*1)
Data register	D	D	0 - 2FFF	R/W	(*1)
Link register	R	R	0 - 7FF	R/W	(*1)
Special register	S	S	0 - 3FF	R/W	(*1)
File register	B	B	0 - 1FFF	R/W	(*1) (*2)
Internal relay	P3WM	M	0 - 7F	R/W	
Keep-relay	P3WK	K	0 - 2F	R/W	

Link relay	P3WL	L	0 - 7F	R/W	
Timer contact	P3WT	T	0 - 1F	R	
Counter contact	P3WC	C	0 - 1F	R	
Present value register	P3N	N	0 - 1FF	R	
Data register	P3D	D	0 - 2FFF	R/W	
Link register	P3R	R	0 - 7FF	R/W	
Special register	P3S	S	0 - 3FF	R/W	
File register	P3B	B	0 - 1FFF	R/W	(*2)
Internal relay	P2WM	M	0 - 7F	R/W	
Keep-relay	P2WK	K	0 - 2F	R/W	
Link relay	P2WL	L	0 - 7F	R/W	
Timer contact	P2WT	T	0 - 1F	R	
Counter contact	P2WC	C	0 - 1F	R	
Present value register	P2N	N	0 - 1FF	R	
Data register	P2D	D	0 - 2FFF	R/W	
Link register	P2R	R	0 - 7FF	R/W	
Special register	P2S	S	0 - 3FF	R/W	
File register	P2B	B	0 - 1FFF	R/W	(*2)
Internal relay	P1WM	M	0 - 7F	R/W	
Keep-relay	P1WK	K	0 - 2F	R/W	
Link relay	P1WL	L	0 - 7F	R/W	
Timer contact	P1WT	T	0 - 1F	R	
Counter contact	P1WC	C	0 - 1F	R	
Present value register	P1N	N	0 - 1FF	R	
Data register	P1D	D	0 - 2FFF	R/W	
Link register	P1R	R	0 - 7FF	R/W	
Special register	P1S	S	0 - 3FF	R/W	
File register	P1B	B	0 - 1FFF	R/W	(*2)
Extended input	WEX	EX	0 - 7F	R/W	
Extended output	WEY	EY	0 - 7F	R/W	
Extended internal relay	WEM	EM	0 - 1FF	R/W	
Extended keep-relay	WEK	EK	0 - FF	R/W	
Extended link relay	WEL	EL	0 - 1FF	R/W	
Extended timer contact	WET	ET	0 - 7F	R	(*1)

Extended counter contact	WEC	EC	0 - 7F	R	(*1)
Extended present value register	EN	EN	0 - 7FF	R	
Extended data register	U	U	0 - 7FFF	R/W	
Extended special register	ES	ES	0 - 7FF	R/W	
Extended setup value register	H	H	0 - 7FF	R/W	
Extended input	WGX	GX	0 - FFF	R/W	(*4)
Extended output	WGY	GY	0 - FFF	R/W	(*4)
Extended internal relay	WGM	GM	0 - FFF	R/W	(*4)
Extended Buffer register 0	EB0	EB	0 - 7FFF	R/W	(*4)
Extended Buffer register 1	EB1	EB	8000 - FFFF	R/W	(*4)
Extended Buffer register 2	EB2	EB	10000 - 17FFF	R/W	(*4)
Extended Buffer register 3	EB3	EB	18000 - 1FFFF	R/W	(*4)

- (*1) Parameter-set program No. in “Link parameter” is an objective of command processing. When the built-in standard link parameters are not set, Probram1 is an objective of command processing.
- (*2) When CPU operation mode is division mode, File register is not available.
- (*3) R/W：Read and Wirte device　R：Read only device
- (*4)These devices are available in the case of a PC3JG mode.
- Depending on the type of CPU operation mode of PC3J that you will be using, the there are limits to the areas that can be used within the device ranges given above. Refer to the PLC manual for details.

10 Toshiba Machine Works

10.1 Connection Table

10.1.1 Compatible PLCs

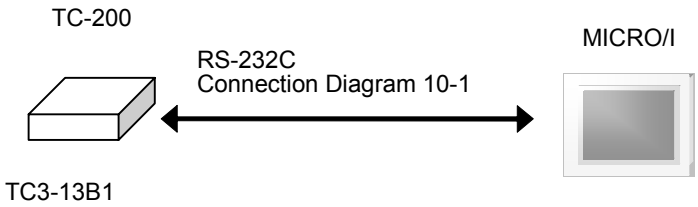
Manufacturer	Series Name	System (CPU unit)	Link Unit	WindO/I-NV2 Setting Name		
				Interface	Flow Control	Host I/F Driver
Toshiba Machine Works	TC200	TC3-13B1	Not required (connects to CPU unit)	RS-232C (Connection Diagram 10-1)	Hardware /None	TC200
	TCmini	TC03-01 TC03-02	Not required (connects to CPU unit)	RS-232C (Connection Diagram 10-2)		
			Not required (connects to CPU unit)	RS-232C (Connection Diagram 10-3)		

* We tested with the PLC of underline part.

10.2 System Configuration

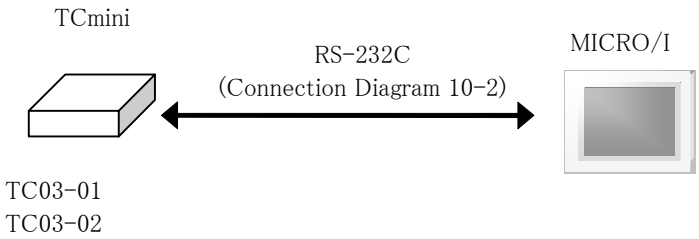
This is the system configuration for connection of Toshiba machine works PLCs to the MICRO/I.

10.2.1 TC200

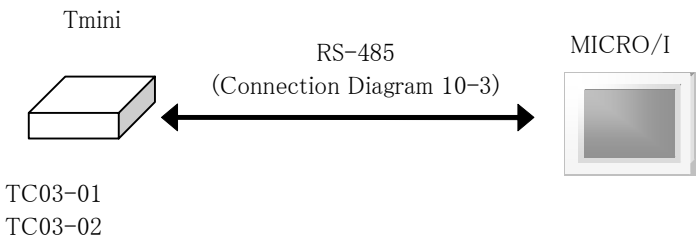


Connects to Serial port of CPU unit.

10.2.2 TCmini (connected to the RS-232C Port)



10.2.3 TCmini (connected to the RS-485 Port)



10.3 Connection Diagram

The connector types given in the Connection Diagrams are for the unit and not the cable. For details regarding wiring, refer to "3 Important Points Regarding About Wiring" in Chapter 1.

Connection Diagram 10-1: TC200 (RS-232C) - MICRO/I

PLC(RS-232C)	
Pin No.	Name
1	CD
2	SD
3	RD
4	DR
5	SG
6	ER
7	CS
8	RS
-	FG

Shield Wire

HG1F/2F/2S/3F/4F(RS-232C)			
Name	Pin No.		
	HG1F Connector	HG2F/ 3F/4F	HG2S
FG	1	1	1
SD	2	2	30
RD	3	3	32
RS	9	4	34
CS	6	5	36
NC	-	6	-
SG	7	7	29
NC	-	8	-
ER	-	20	-

D-sub, 9P connector plug type

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

Connection Diagram 10-2 : TCmini (RS-232C) - MICRO/I

PLC(RS-232C)	
Pin No.	Name
1	CI
2	SD
3	RD
4	DR
5	SG
6	ER
7	CS
8	RS
9	CD

Shield Wire

HG1F/2F/2S/3F/4F(RS-232C)			
Name	Pin No.		
	HG1F Connector	HG2F/ 3F/4F	HG2S
FG	1	1	1
SD	2	2	30
RD	3	3	32
RS	9	4	34
CS	6	5	36
NC	-	6	-
SG	7	7	29
NC	-	8	-
ER	-	20	-

D-sub, 9P connector plug type

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

Connection Diagram 10-3 : TCmini (RS-485) - MICRO/I

PLC(RS-485/422)	
Pin No.	Name
1	TDA
2	TDB
3	RDA(A)
4	RDB(B)
5	GND
6	P5V
7	FG

Shield Wire

HG1F/2F/2S/3F/4F(RS-485/422)				
Name	Pin No.			
	HG1F Connector	HG2F/ 3F/4F	HG2S	HG2S
FG	Cover	-	1	1
TERM	-	-	9	-
RDA(RD+)	2	3	10	32
RDB(RD-)	7	4	16	33
SDA(SD+)	1	1	11	30
SDB(SD-)	6	2	15	31
CS-	9	-	18	37
RS-	8	-	19	35
CS+	4	-	21	36
RS+	3	-	22	34
SG	5	5	7	29

Internal termination resistor 330-Ohm

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

- There is no pin No. corresponding to TERM on the HG1F/HG2S. When inserting a termination resistor, use a communication switch. For the setting of the switch, refer to "3 Important Points Regarding Wiring" in Chapter 1.

WARNING When you use the Terminal Block type of HG1F, make sure to configure the Hardware Flow control to NONE because the HG1F doesn't have control lines.

10.4 Environment Settings

10.4.1 TC200

Items	Details
Serial Interface	RS-232C
PC No.	00 - 63 (Set same as MICRO/I) (DEC)
Baud Rate (bps)	9600
Data Bits (bit)	8
Parity	None
Stop Bits (bit)	2

10.5 Usable Devices

- Bit Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Input Relay	X	X	0 - F7F	R	
Output Relay	Y	Y	0 - F7F	R/W	
Internal Relay	R	R	0 - 77F	R/W	
Latch Relay	L	L	0 - 7F	R/W	
Exp.Int.Relay1	G	G	0 - F7F	R/W	
Exp.Int.Relay2	H	H	0 - F7F	R/W	
Spec. Aid Relay	A	A	0 - 16F	R/W	
Timer (Relay)	T	T	0 - 37F	R	
Counter (Relay)	C	C	0 - 37F	R	
Sift Register	S	S	0 - 7F	R/W	
Edge Relay	E	E	0 - 77F	R/W	

- Word Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Input Relay	WX	X	0 -F7	R	
Output Relay	WY	Y	0 - F7	R/W	
Internal Relay	WR	R	0 - 77	R/W	
Latch Relay	WL	L	0 - 7	R/W	
Exp.Int.Relay1	WG	G	0 - F7	R/W	
Exp.Int.Relay2	WH	H	0 - F7	R/W	
Spec. Aid Relay	WA	A	0 - 16	R/W	
Tim/Cnt. (Current Value)	P	P	0 - 77F	R	
Tim/Cnt (Preset Value)	V	V	0 - 77F	R/W	
General Register1	D	D	0 - F7F	R/W	
General Register2	B	B	0 - F7F	R/W	
Sift Register	WS	S	0 - 7	R/W	
Edge Relay	WE	E	0 - 77	R/W	
Timer Relay (Word)	WT	T	0 - T77	R	
Counter Relay (Word)	WC	C	0 - 77	R	

11 GE Fanuc Automation

11.1 Connection Table

11.1.1 Compatible PLCs

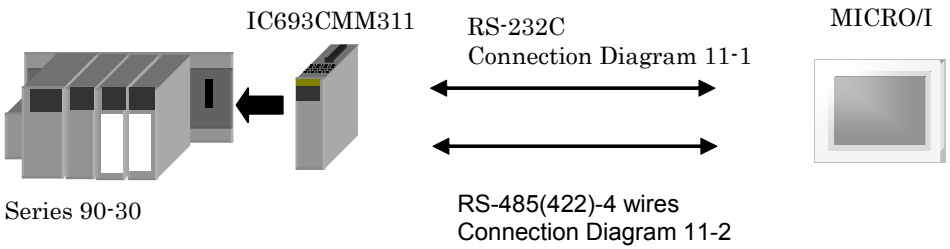
Manufacturer	Series Name	System (CPU unit)	Link Unit	WindO/I-NV2 Setting Name		
				Interface	Flow Control	Host I/F Driver
GE Fanuc Automation	Series90-30	CPU331,CPU341, CPU350,CPU351, CPU352,CPU360, CPU363,CPU364, CPU374	IC693CMM311	RS-232C (Connection Diagram 11-1)	Hardware	Series 90 (SNP-X)
				RS-485 (422)-4 (Connection Diagram 11-2)		
		CPU311,CPU313, CPU323,CPU331, CPU341,CPU350, CPU351,CPU352, CPU360,CPU363, CPU364,CPU374	Not required (connects to CPU(Power Supply) unit directly)	RS-485 (422)-4 (Connection Diagram 11-3)		
	VersaMax	Nano	Not required (connects to CPU unit directly)	RS-232C (Connection Diagram 11-4)		
		Micro (14point)				
		Micro (23,28point)		RS-232C (Connection Diagram 11-4)		
				RS-485 (422)-4 (Connection Diagram 11-3)		

* We tested with the PLC of underline part.

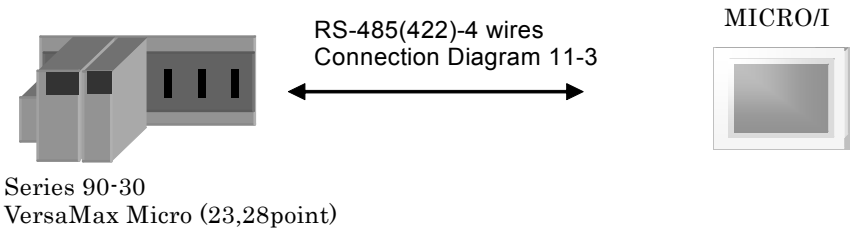
11.2 System Configuration

The following document explains the connection of GE Fanuc PLCs to MICRO/I screens.

11.2.1 Series 90-30 (Using Communication Coprocessor Module(CMM))

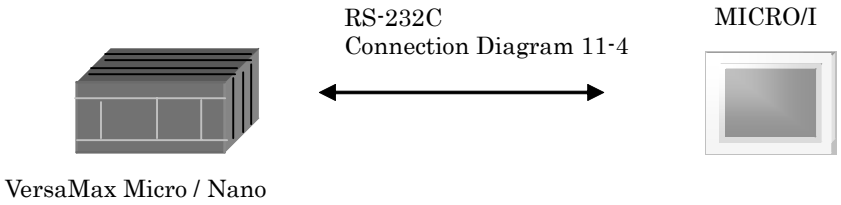


11.2.2 Series 90-30,VersaMax Micro (Using CPU Serial Port)



Connects to Serial port on Series 90-30 PLC Power Supply.
Connects to Serial port 2 on VersaMax Micro PLC.

11.2.3 VersaMax Micro/Nano (Using Serial Port 1)

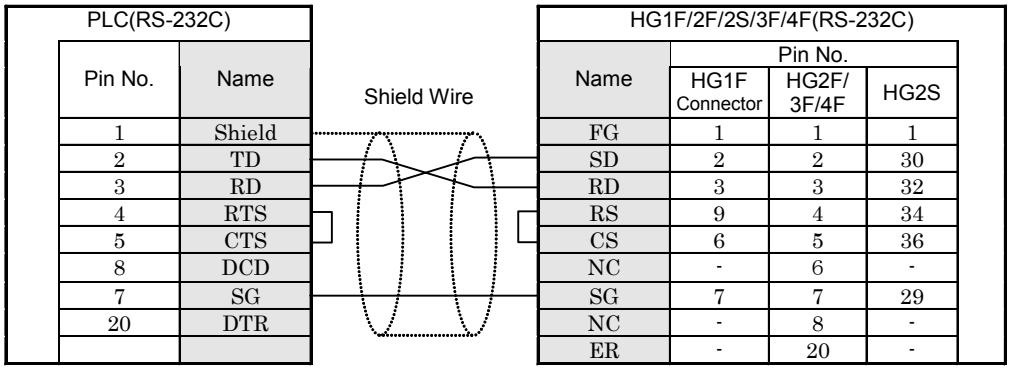


Connects to Serial port 1(RS-232C) on VersaMax Micro/Nano PLC.

11.3 Connection Diagram

The connector types given in the Connection Diagrams are for the unit and not for the cable. For details regarding wiring, refer to "3 Important Points Regarding Wiring" in Chapter 1.

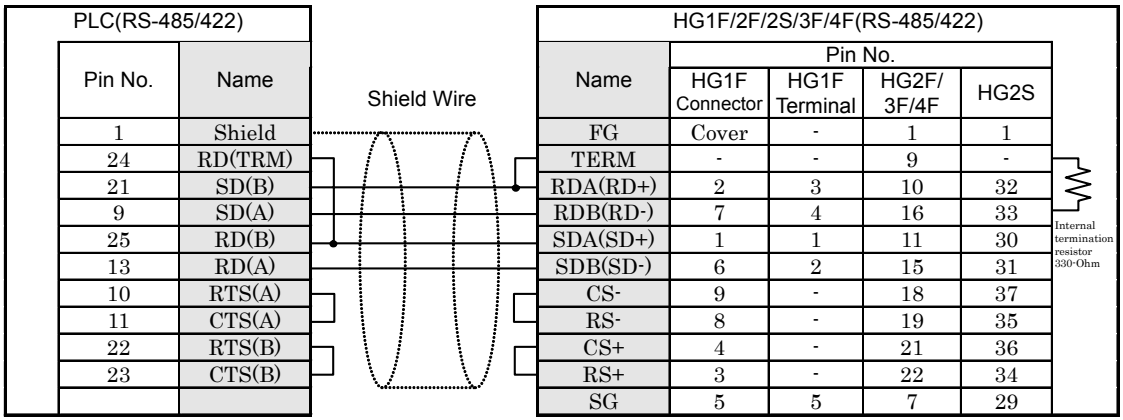
Connection Diagram 11-1: Series 90-30 Communication Coprocessor Module (CMM) (RS-232C) to MICRO/I



D-sub, 25P connector socket type (unit side)

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

Connection Diagram 11-2: Series 90-30 Communication Coprocessor Module (CMM) (RS-422(485)) to MICRO/I



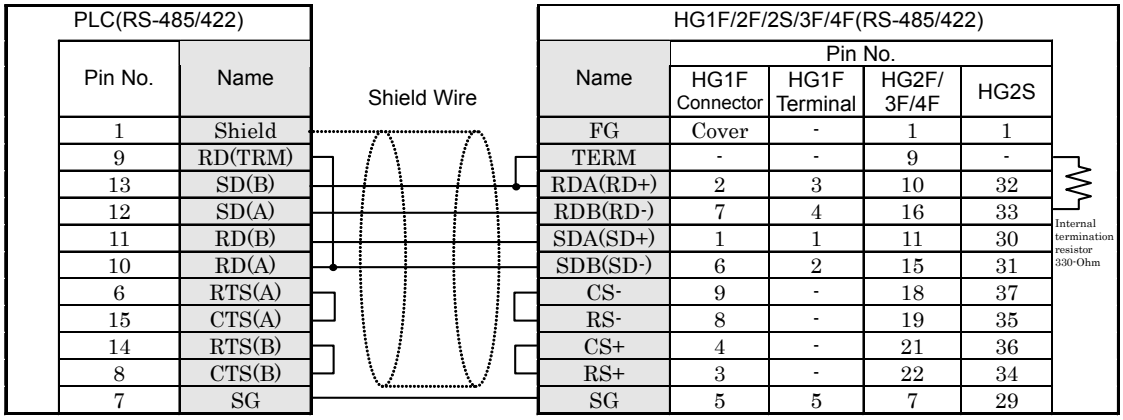
D-sub, 25P connector socket type

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

- There is no pin No. corresponding to TERM on the HG1F/HG2S. When inserting a termination resistor, use a communication switch. For the setting of the switch, refer to "3 Important Points Regarding Wiring" in Chapter 1.

WARNING When you use the Terminal Block type of HG1F, make sure to configure the Hardware Flow control to NONE because the HG1F doesn't have control lines.

Connection Diagram 11-3: PLC(RS-485) to MICRO/I



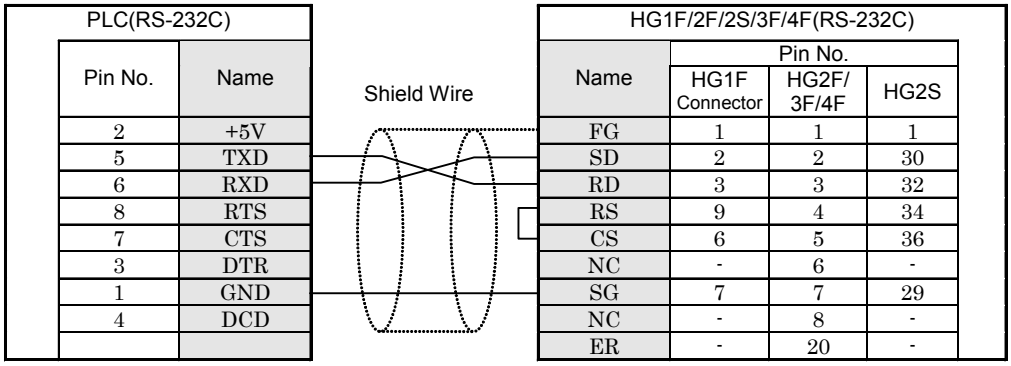
D-sub, 15P connector socket type

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

- There is no pin No. corresponding to TERM on the HG1F/HG2S. When inserting a termination resistor, use a communication switch. For the setting of the switch, refer to "3 Important Points Regarding Wiring" in Chapter 1.

WARNING When you use the Terminal Block type of HG1F, make sure to configure the Hardware Flow control to NONE because the HG1F doesn't have control lines.

Connection Diagram 11-4 PLC(RS-232C) to MICRO/I



RJ-45, 8P modular connector plug type

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

11.4 Environment Settings

The communication port settings for GE Fanuc PLCs and MICRO/I host port are as follows

11.4.1 Series 90-30 Communication Coprocessor Module (CMM)

Item		Setting	
Interface	Set to the same setting as the MICRO/I	RS-232C	RS-485-4wires
Baud Rate [bps]		1200/2400/4800/9600/19200	
Data Bits[bit]		8 (fixed)	
Parity		Odd /Even / None	
Stop Bits[bit]		1 / 2	
Flow Control		None	Hardware / None
Configuration Mode		SNP Only	
SNP Enable		Yes	
SNP Mode		Slave	

Do not set SNP ID for the PLC. If you set it, MICRO/I will not communicate with PLC.

11.4.2 Series 90-30 CPU Module

Item		Setting
Interface	Set to the same setting as the MICRO/I	RS-485-4wires
Baud Rate [bps]		1200/2400/4800/9600/19200
Data Bits[bit]		8(fixed)
Parity		Odd /Even / None
Stop Bits[bit]		1 / 2

Do not set SNP ID for the PLC. If you set it, MICRO/I will not communicate with PLC.

11.4.3 VersaMax Micro/Nano

Item		Setting	
Interface	Set to the same setting as the MICRO/I	RS-232C (Port 1)	RS-485-4wires(Port 2)
Baud Rate [bps]		1200/2400/4800/9600/19200	
Data Bits[bit]		8 (fixed)	
Parity		Odd /Even / None	
Stop Bits[bit]		1 / 2	
Port Mode		SNP	
Port Type		Slave	

- Do not set SNP ID for the PLC. If you set it, MICRO/I will not communicate with PLC.
- Refer to the manuals of Series90-30 or VersaMax Micro/Nano PLCs for details.

11.5 Usable Devices

The types of devices supported by the MICRO/I and their ranges are shown below.

- Bit Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Discrete Inputs	I	%I	1 - 12288	R	Dec
Discrete Outputs	Q	%Q	1 - 12288	R/W	Dec
Internal Coils	M	%M	1 - 12288	R/W	Dec
Temporary Coils	T	%T	1 - 256	R/W	Dec
Discrete Globals	G	%G	1 - 7680	R/W	Dec
System Status References S	S	%S	1 - 128	R	Dec
System Status References SA	SA	%SA	1 - 128	R/W	Dec
System Status References SB	SB	%SB	1 - 128	R/W	Dec
System Status References SC	SC	%SC	1 - 128	R/W	Dec

· Word Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Discrete Inputs	WI	%I	1 - 12273	R	Dec
Discrete Outputs	WQ	%Q	1 - 12273	R/W	Dec
Internal Coils	WM	%M	1 - 12273	R/W	Dec
Temporary Coils	WT	%T	1 - 241	R/W	Dec
Discrete Globals	WG	%G	1 - 7665	R/W	Dec
System Status References S	WS	%S	1 - 113	R	Dec
System Status References SA	WSA	%SA	1 - 113	R/W	Dec
System Status References SB	WSB	%SB	1 - 113	R/W	Dec
System Status References SC	WSC	%SC	1 - 113	R/W	Dec
Register Memory	R	%R	1 - 16384	R/W	Dec
Analog Inputs	AI	%AI	1 - 8192	R/W	Dec
Analog Outputs	AQ	%AQ	1 - 8192	R/W	Dec

The device ranges may differ depending on the PLC model. Please refer to PLC Manual for supported memory ranges of the PLC you are using.

12 Modbus

Selecting Modbus RTU or MODBUS/TCP Client for the Host I/F Driver allows the user to use the 1: N Communication function.

・1: N Communication function (→ Chapter 6 1: N Communication Function)

12.1 Connection Table

12.1.1 Compatible Protocols

Protocol	WindO/I-NV2 Setting Name		
	Interface	Flow Control	Host I./F Driver
Modbus RTU Master	RS232C RS-485/422	Hardware /None	Modbus RTU
MODBUS/TCP Client	Ethernet *1	－	MODBUS/TCP Client
MODBUS/TCP Server	Ethernet *1	－	MODBUS/TCP Server

Refer to section 12.6 for the details of the MODBUS/TCP Server.

*1) If you select “MODUBS/TCP Client” in the Protocol setting, the interface will be used as Ethernet and the only settings of “Transmission Wait”, “Time Out” and “Retry Cycles” on the Host Port tab of the Project Setting dialog box are available.

MODBUS/TCP Client or MODBUS/TCP Server cannot be used as Host I/F Driver by MICRO/I equipped with the Ethernet port.

12.1.2 Compatible PLCs

Manufacturer	Series Name	System (CPU unit)	Link Unit	WindO/I-NV2 Setting Name		
				Interface	Flow Control	Host I/F Driver
Schneider	Twido	TWD LC*A 10DRF	Not required (connects to CPU unit directly)	RS-485 (Connection Diagram 12-2)	Hardware	Modbus RTU
		TWD LC*A 16DRF TWD LC*A 24DRF TWD LCA* 40DRF	Not required (connects to CPU unit directly)	RS-485 (Connection Diagram 12-2)		
			TWD NAC 232D	RS-232C (Connection Diagram 12-1)		
			TWD NAC 485D	RS-485-2 (Connection Diagram 12-2)		
			TWD NAC 485T	RS-485-2 (Connection Diagram 12-3)		

* We tested with the PLC of underline part.

Manufacturer	Series Name	System (CPU unit)	Link Unit	WindO/I-NV2 Setting Name		
				Interface	Flow Control	Host I/F Driver
Schneider	Twido	TWD LMDA 20DTK TWD LMDA 20DUK TWD LMDA 20DRT TWD LMDA 40DTK TWD LMDA 40DUK	Not required (connects to CPU unit directly)	RS-485 (Connection Diagram 12-2)	Hardware	Modbus RTU
			TWD NOZ 485D	RS-232C (Connection Diagram 12-1)		
			TWD NOZ 232D	RS-485-2 (Connection Diagram 12-2)		
			TWD NOZ 485T	RS-485-2 (Connection Diagram 12-3)		
			TWD XCP ODM +TWD NAC 485D	RS-232C (Connection Diagram 12-1)		
			TWD XCP ODM +TWD NAC 232D	RS-485-2 (Connection Diagram 12-2)		
			TWD XCP ODM +TWD NAC 485T	RS-485-2 (Connection Diagram 12-3)		

* We tested with the PLC of underline part.

Manufacturer	Series Name	System (CPU unit)	Link Unit	WindO/I-NV2 Setting Name		
				Interface	Flow Control	Host I/F Driver
	Momentum	171CCC96020	Not required (connects to Ethernet Port)	(Ethernet) *1	-	MODBUS/TCP Client

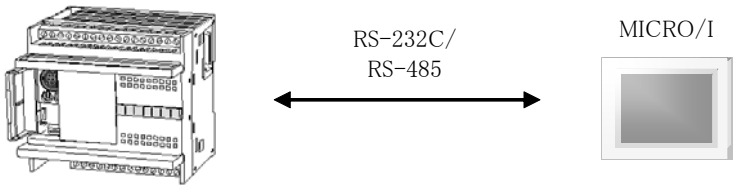
* We tested with the PLC of underline part.

MODBUS/TCP Client or MODBUS/TCP Server cannot be used as Host I/F Driver by MICRO/I equipped with the Ethernet port.

12.2 System Configuration

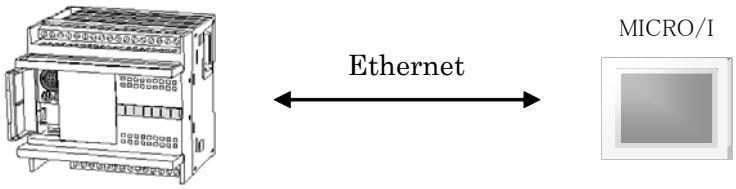
This is the system configuration for connection of Schneider PLCs to the MICRO/I.

12.2.1 Modbus RTU Master



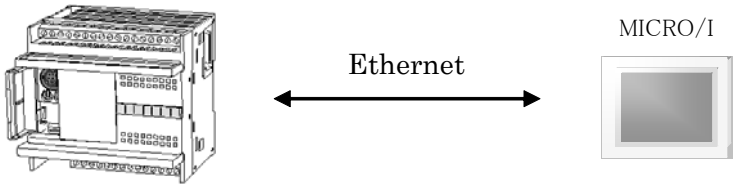
Equipment for
Modbus RTU Slave

12.2.2 Modbus/TCP Client



Equipment for
MODBUS/TCP Server

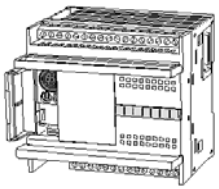
12.2.3 Modbus/TCP Server



Equipment for
MODBUS/TCP Client

12.2.4 Twido

Serial Port on CPU module



RS-485

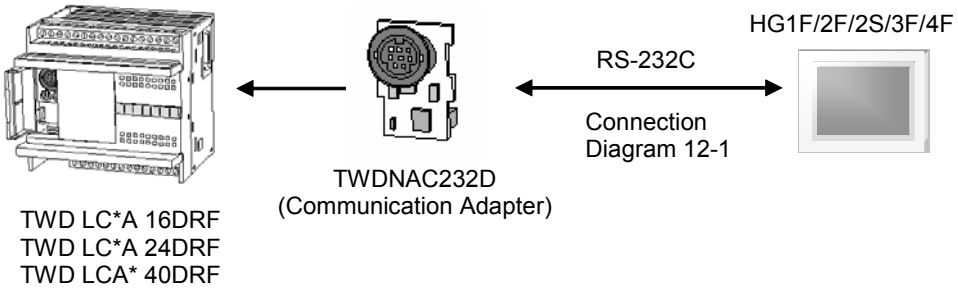
Connection Diagram 12-2

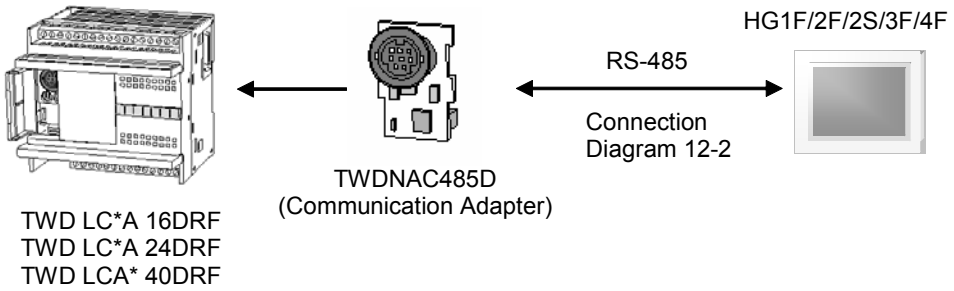
MICRO/I

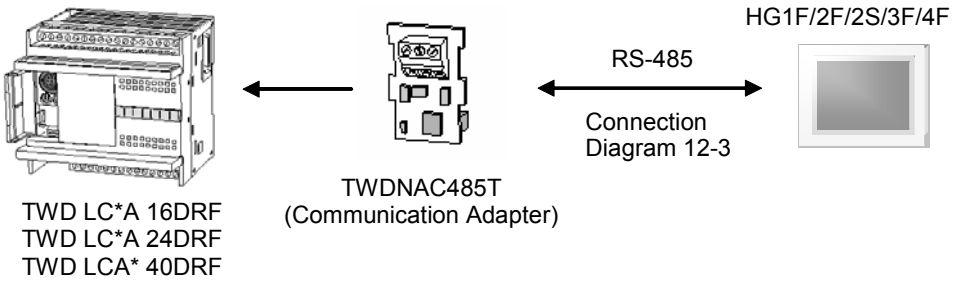
TWD LC*A 10DRF
TWD LC*A 16DRF
TWD LC*A 24DRF
TWD LCA* 40DRF
TWD LMDA 20DTK
TWD LMDA 20DUK
TWD LMDA 20DRT
TWD LMDA 40DTK
TWD LMDA 40DUK

In case of HG2F/3F/4F a connection cable is available (part number: HG9Z-3C115).

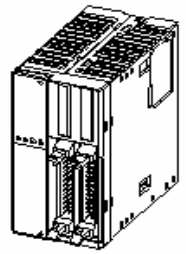
Compact Controller + Communication Adapter



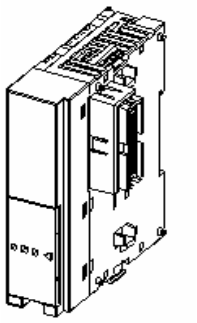




Module Controller + Communication Module



TWD LMDA 20DTK
TWD LMDA 20DUK
TWD LMDA 20DRT
TWD LMDA 40DTK
TWD LMDA 40DUK

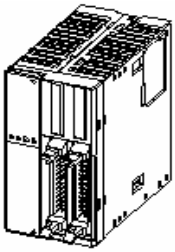


TWD NOZ232D

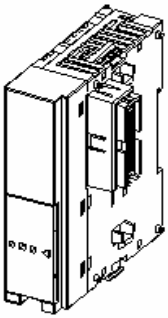
RS-232C

Connection Diagram 12-1

MICRO/I



TWD LMDA 20DTK
TWD LMDA 20DUK
TWD LMDA 20DRT
TWD LMDA 40DTK
TWD LMDA 40DUK

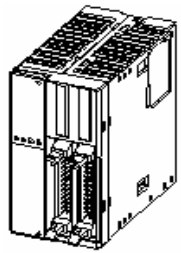


TWD NOZ485D

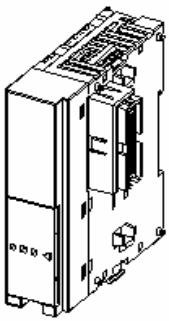
RS-485

Connection Diagram 12-2

MICRO/I



TWD LMDA 20DTK
TWD LMDA 20DUK
TWD LMDA 20DRT
TWD LMDA 40DTK
TWD LMDA 40DUK



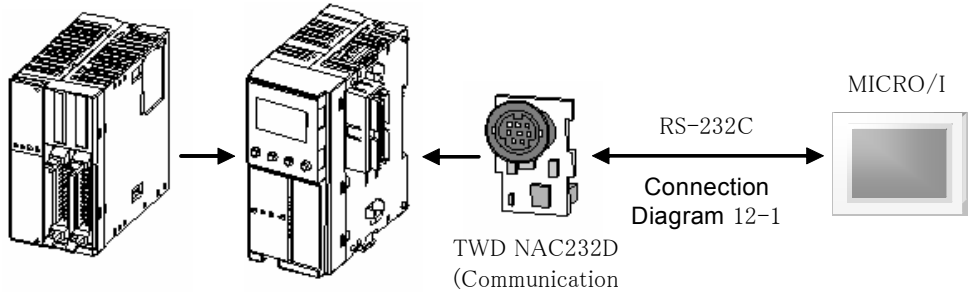
TWD NOZ485T

RS-485

Connection Diagram 12-3

MICRO/I

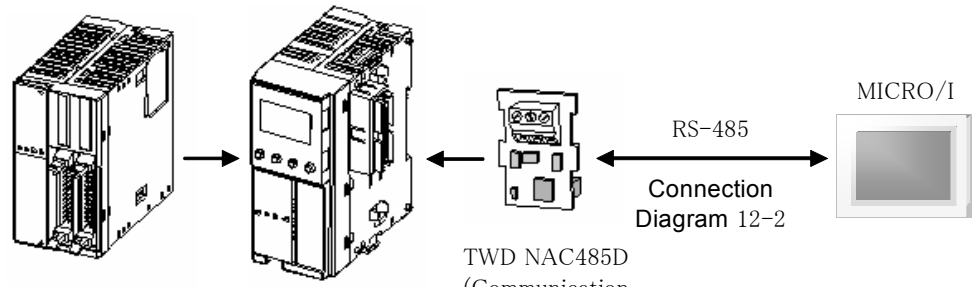
Module Controller + HMI Module + Communication Adapter



TWD LMDA 20DTK
TWD LMDA 20DUK
TWD LMDA 20DRT
TWD LMDA 40DTK
TWD LMDA 40DUK

TWD XCP ODM
(HMI Module)

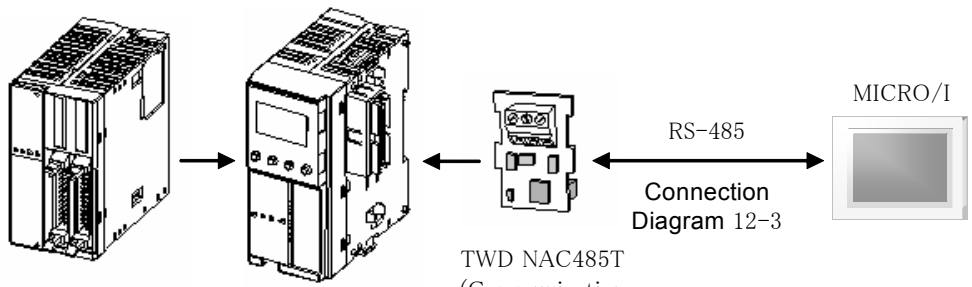
TWD NAC232D
(Communication
Adapter)



TWD LMDA 20DTK
TWD LMDA 20DUK
TWD LMDA 20DRT
TWD LMDA 40DTK
TWD LMDA 40DUK

TWD XCP ODM
HMI Module)

TWD NAC485D
(Communication
Adapter)

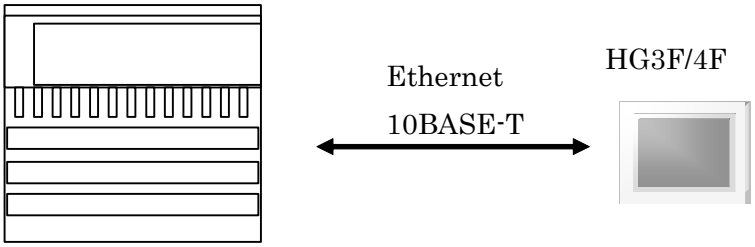


TWD LMDA 20DTK
TWD LMDA 20DUK
TWD LMDA 20DRT
TWD LMDA 40DTK
TWD LMDA 40DUK

TWD XCP ODM
(HMI Module)

TWD NAC485T
(Communication
Adapter)

12.2.5 Momentum (MODUBS/TCP Client)



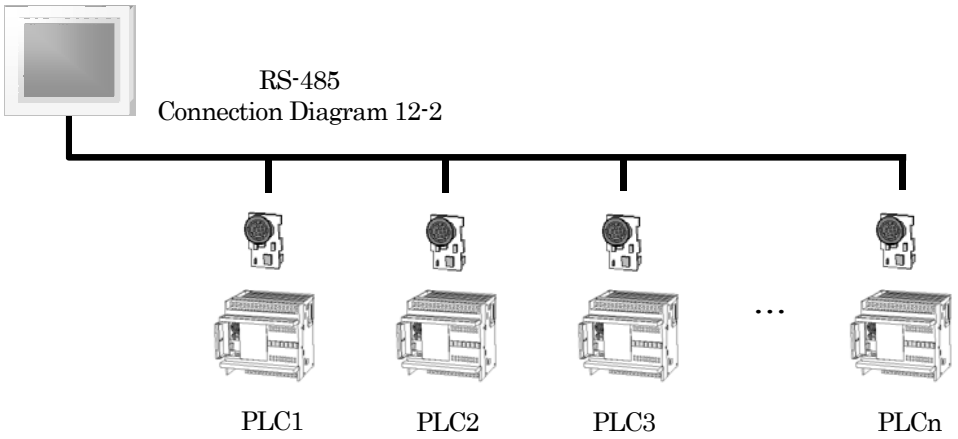
- Use the direct connection with the cross cable or the hub if you use the Ethernet connection.
- Please avoid using for the long distance communication because this driver may be used in the control network in the same factory only.

12.2.6 1: N Communication-TWDL CAA16DRF/TWDLCAA24DRF +TWDNAC485D (Communication board)

The 1: N communication can be established by using the following connection.

TWDLCAA16DRF/TWDLCAA24DRF+TWDNAC485D (Communication board)

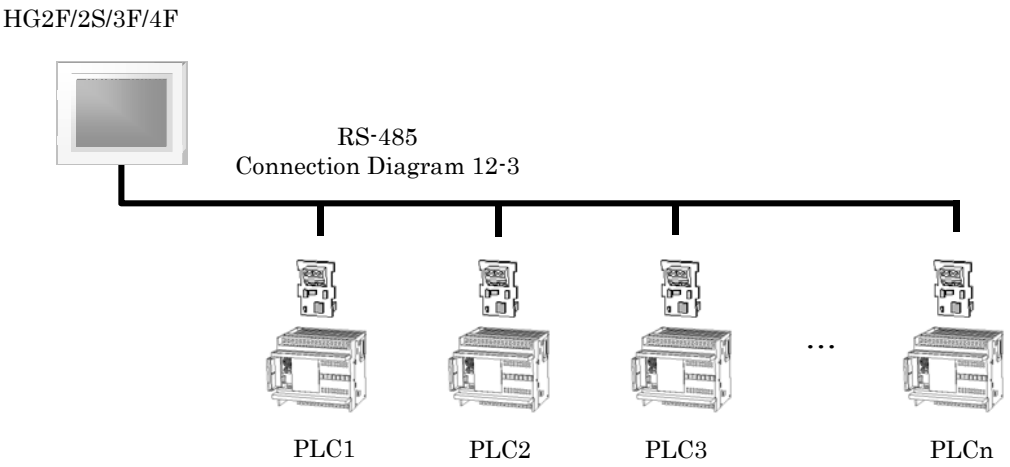
HG2F/2S/3F/4F



12.2.7 1: N Communication- TWDLCAA16DRF/TWDLCAA24DRF +TWDNAC485T (Communication board)

The 1: N communication can be established by using the following connection.

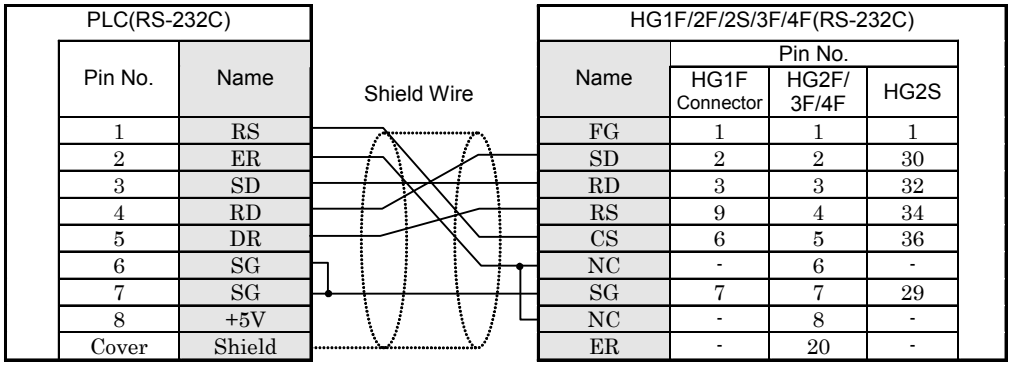
TWDLCAA16DRF/TWDLCAA24DRF+TWDNAC485T (Communication board)



12.3 Connection Diagram

For details regarding wiring and termination resistors, refer to "3 Important Points Regarding About Wiring" in Chapter 1.

Connection Diagram 12-1: TWDNAC232D to MICRO/I

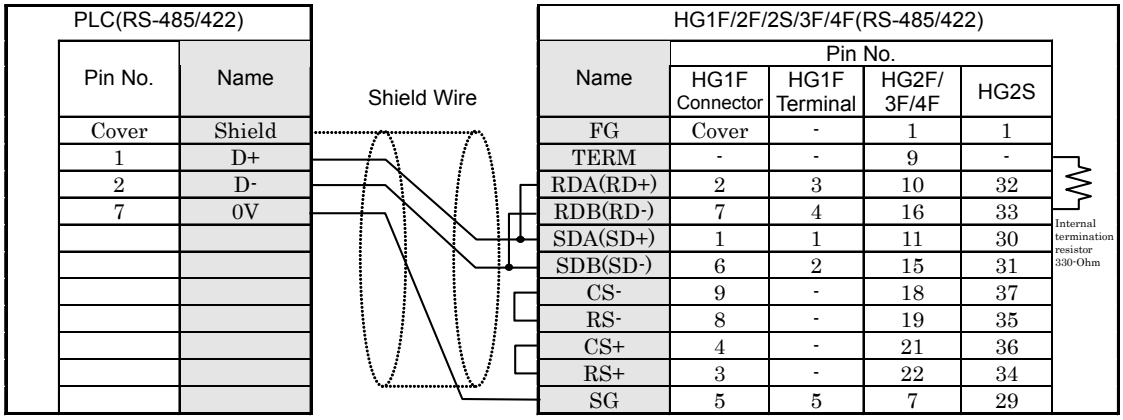


Mini DIN8P

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

In case of HG2F/3F/4Fa connection cable is available (part number: HG9Z-3C125).
The connection diagram 12-1 is not same as HG9Z-3C125. But both diagrams are available.
Refer to the Hardware Manual about the connection diagram of HG9Z-3C125.

Connection Diagram 12-2: TWDNAC485D to MICRO/I



Mini DIN 8P

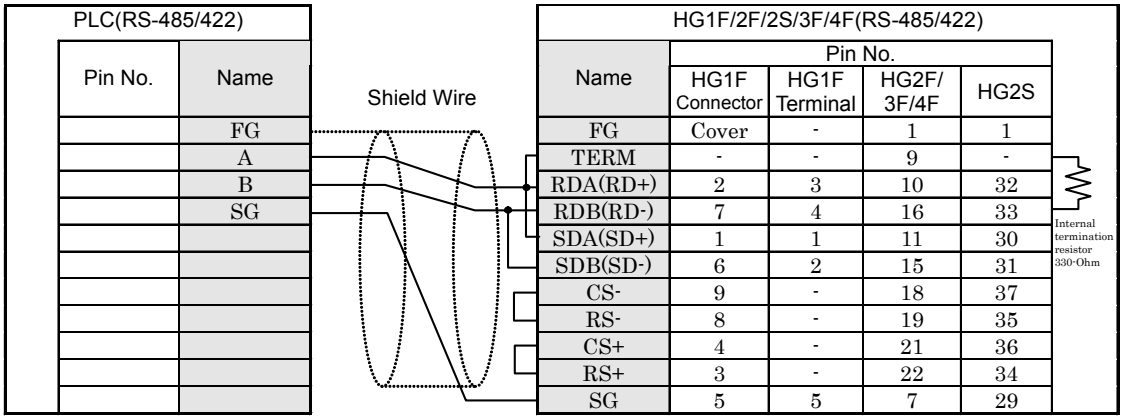
D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

- In case of HG2F/3F/4F a connection cable is available (part number: HG9Z-3C115).
- There is no pin No. corresponding to TERM on the HG1F/HG2S. When inserting a termination resistor, use a communication switch. For the setting of the switch, refer to "3 Important Points Regarding Wiring" in Chapter 1.

WARNING

When you use the Terminal Block type of HG1F, make sure to configure the Hardware Flow control to NONE because the HG1F doesn't have control lines.

Connection Diagram 12-3: TWDNAC485T to MICRO/I



Screw terminal block

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

- There is no pin No. corresponding to TERM on the HG1F/HG2S. When inserting a termination resistor, use a communication switch. For the setting of the switch, refer to "3 Important Points Regarding Wiring" in Chapter 1.

WARNING

When you use the Terminal Block type of HG1F, make sure to configure the Hardware Flow control to NONE because the HG1F doesn't have control lines.

12.4 Environment Settings

12.4.1 Twido

Items	Details
Serial Interface	RS-232C/RS485-2wire
Slave Address	1 – 247(DEC)
Baud Rate (bps)	1200/2400/4800/9600/19200/38400
Data Bits (bit)	7,8
Parity	None, Even, Odd
Stop Bits (bit)	1, 2
Flow Control	ER

12.4.2 Momentum (MODBUS/TCP Client)

Items	Items	Details
Serial Interface		-- *1
Slave Address		-- *1
Baud Rate (bps)		-- *1
Data Bits (bit)		-- *1
Parity		-- *1
Stop Bits (bit)		-- *1
unit ID	The same setting as MICRO/I	1 – 247(DEC)
Destination Address *3		IPv4 Typed IP address
Port Number *3		0 to 32767 *2

*1) These settings will be ignored since it is using the Ethernet port.

*2) If "0" is set, this driver will set "502" (the number of MODBUS/TCP default port) automatically.

*3) Destination Address and Port Number cannot be changed from the system menu of MICRO/I. Please change it using WindO/I-NV2 software

*Set unit ID of MICRO/I by the decimal number.

12.5 Usable Devices

12.5.1 Modbus RTU Master, MODBUS/TCP Client, MODBUS/TCP Server

- Bit Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Coil	C	C	1 - 65536	R/W	Dec
Inputs Status	I	I	100001 - 165536	R	Dec

- Word Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Holding Registers	HR	HR	400001 - 465536	R/W	Dec
Inputs Registers	IR	IR	300001 - 365536	R	Dec

12.5.2 Twido(Modbus RTU Master)

- Bit Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Coil	C	%M	1 - 256	R/W	Dec
Inputs Status	I	%M	100001 – 100256	R	Dec

- Word Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Holding Registers	HR	%MW	400001 – 401500	R/W	Dec
Inputs Registers	IR	%MW	300001 – 301500	R	Dec

12.4.3 Momentum (MODBUS/TCP Client)

- Bit Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Coil	C	-	1 - 65536	R/W	Dec
Inputs Status	I	-	100001 - 165536	R	Dec

- Word Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Holding Registers	HR	-	400001 - 465536	R/W	Dec
Inputs Registers	IR	-	300001 - 365536	R	Dec

12.6 MODBUS/TCP Server

12.6.1 Overview of the MODBUS/TCP Server Communication

12.6.1.1 Overview

The MODBUS/TCP Server communication performs that PC or PLC (refers to as a host device) can read and write the MICRO/I communication devices via the Ethernet.
The read/write of a device is performed using the MODBUS/TCP protocol. Up to 4 host devices can be connected to the MICRO/I at same time.

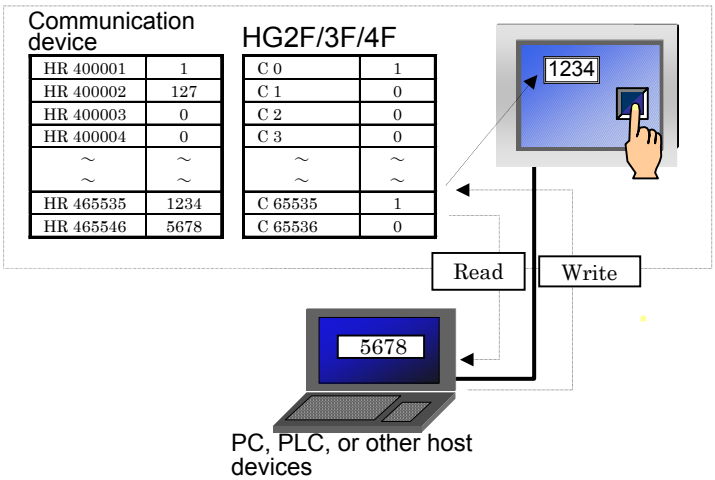
12.6.1.2 Operation of the Communication

The host device is capable of reading/writing to the MICRO/I communication devices. It is also possible to read/write communication devices from the MICRO/I.

12.6.1.3 Read/Write from the Host Device

The host device is capable of reading/writing the data in the data memory at the any timing.

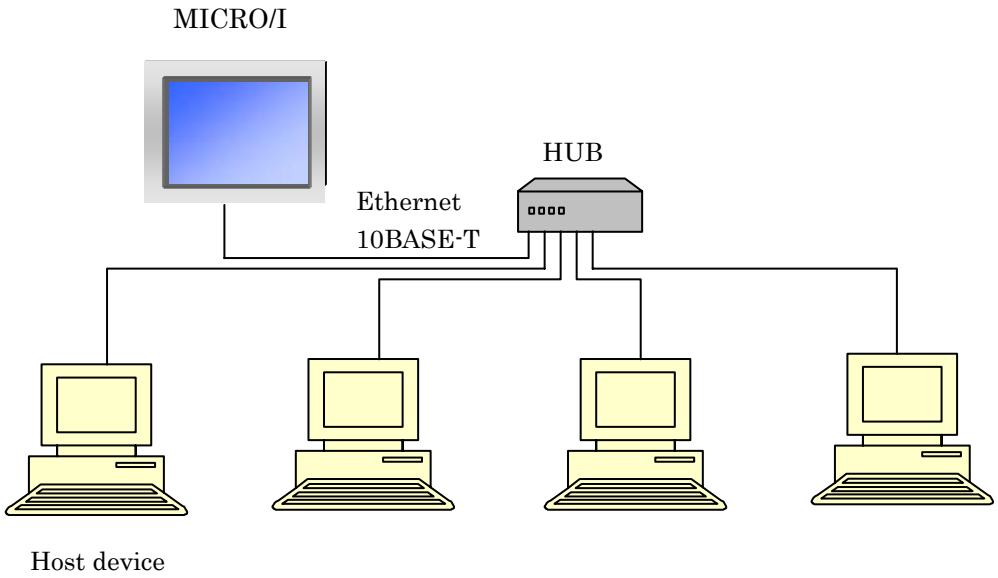
Conceptual Diagram of Communication



MODBUS/TCP communication is the open protocol.
For detail information, visit the website at http://www.modbus.org/.

12.6.2 System Configuration

The following is the system configuration.



WARNING

- Up to 4 host devices can communicate with a single MICRO/I unit at one time.
- The MICRO/I unit and a host device can be directly connected on a 1:1 basis by bypassing a hub. In this case, use a crossing cable for the connection.

12.6.3 Wiring

Make sure to use commercially available 10BASE-T ready cables for connecting the devices.
Use a straight cable when using a hub, and use a crossing cable when directly connecting to the MICRO/I and a host device.

12.6.4 Devices

The following devices are available for MODBUS/TCP Server communication.

Bit Device

Device Name	Device Symbol	Address Range	MICRO/I Read/Write	Host Read/Write	Address Gradual
Coil Status	C	1 - 65536	R/W	R/W	Decimal
Input Status	I	100001 - 165536	R/W	R	Decimal

Word Device

Device Name	Device Symbol	Address Range	MICRO/I Read/Write	Host Read/Write	Address Gradual
Holding Register	HR	400001 - 465536	R/W	R/W	Decimal
Input Register	IR	300001 - 365536	R/W	R	Decimal

All devices are general-purpose devices intended for nonspecific purposes.

12.6.5 Settings

The settings of the MODBUS/TCP Server communication can be configured in the [Select Host Port] and [Project Attributes] dialog boxes in WindO/I-NV2. The following table lists the configurable settings. Configure the settings according to the host device to be used.

	Settings	Description
[Select the Host I/F Driver]	Manufacturer	Select "Modicon".
	Protocol	Select "MODSUB/TCP SERVER".
[Project Settings] —[Host I/F Driver]	O/I Link	When using the O/I Link, select "Enable".
	Refuse Access From Unknown Clients	Check this box to refuse access from devices other than the specified host device (client).
[Project Settings] —[Host I/F Extension]	Time Out	Enter the duration after which timeout occurs if request is not sent from the host device (in units of seconds).
	Port Number	Select the port number used for the communication.
	Processing Interval	Enter the interval in units of milliseconds at which the MICRO/I performs communication processing. When the speed of other operations of the MICRO/I seems slow this is due to a large amount of communications, therefore, set a large value here to maybe increase the communication processing speed.
	Client Address 1-4	When "Refuse Access From Unknown Clients" is checked, specify the IP address of the host device (client) from which access will be accepted. When the number of accessible host devices is three or less, then "0.0.0.0" to the address for unused client.

12.6.6 Communication Format

This chapter describes the communication format of the MODBUS/TCP Server communication. The MODBUS/TCP Server communication supports Class 0 and Class 1 functions of the OPEN MODBUS/TCP SPECIFICATION Release1.0. For details about the communication methods, refer to the OPEN MODBUS/TCP SPECIFICATION Release1.0 as well as this manual.

12.6.6.1 Preparations for Communication

The MODBUS/TCP Server performs communications using the TCP. Make sure to establish a connection with the specified port of the MICRO/I with TCP before executing reading/writing of devices.

12.6.6.2 Basic Format

The following table lists the basic format of communications. The same format applies to both requests and responses.
Data is processed as a byte sequences.

	Description
Byte 0	Transaction ID. The same value is returned from the server. The value is normally “0”.
Byte 1	Transaction ID. The same value is returned from the server. The value is normally “0”.
Byte 2	Protocol ID. The value is always “0”.
Byte 3	Protocol ID. The value is always “0”.
Byte 4	Message length (high byte). The value is always “0”. (Since the message is 256 bytes at maximum.)
Byte 5	Message length (low byte). The length of the following message.
Byte 6	Unit ID
Byte 7	Function code
Byte 8-	Data

Transaction ID

The data included in a request is returned from the server without changes. The client (host device) sends a different Transaction ID for each request, and identifies the response by checking the Transaction ID of a response. Enter “0” to not check the Transaction ID.

Protocol ID

The number indicating the MODBUS/TCP protocol, and is always “0”.

Message length

Indicates the length of the following message in units of bytes.

Unit ID

ID used for identifying devices. The ID is not used with the MICRO/I. When the ID is used in a request, the returned data is unchanged.

Function code

Numbers assigned for functions such as reading and writing.

Data

Data required for each processing.

12.6.6.3 Reference Numbers

Reference numbers are used to specify a device address with the MODBUS/TCP.
The reference number is obtained by subtracting 1 from the 1st to 5th value of the device address, and is expressed in hexadecimal format.
The following table lists the address of each device and the corresponding reference number.

Address	Reference No.	Address	Reference No.	Address	Reference No.	Address	Reference No.
C 1	0001	I 100001	0001	HR 400001	0001	IR 300001	0001
C 2	0002	I 100002	0002	HR 400002	0002	IR 300002	0002
…	…	…	…	…	…	…	…
C 65535	FFFE	I 165535	FFFE	HR 465535	FFFE	IR 365535	FFFE
C 65536	FFFF	I 165536	FFFF	HR 465536	FFFF	IR 365536	FFFF

12.6.6.4 Functions

The MICRO/I supports the following functions.

Function code	Function name	Description
3	Read multiple registers	Reading of Holding Register (HR) consecutively
16 (10Hex)	Write multiple registers	Writing to Holding Register (HR) consecutively
1	Read coils	Reading of Coil (C) consecutively
2	Read discrete inputs	Reading of Input Relay (I) consecutively
4	Read input registers	Reading of Input Register (IR) consecutively
5	Write coil	Writing to a single Coil (C)
6	Write single register	Writing to a single Holding Register (HR)
7	Read exception status	Reading of exception status (0 to 7th bit of HR400001)

The following section describes the details of the functions.
The communication example listed for each function is only for the 7th and later bytes of the data.
Refer to the description of the basic format and add bytes 0 to 6 in the actual communications.

FC3 Read multiple registers

Reading of Holding Register (HR) consecutively

(Request)

Byte 7	FC (Function code) = 03
Byte 8-9	Reference No.
Byte 10-11	Number of read words (1 to 125 words)

(Normal response)

Byte 7	FC (Function code) = 03
Byte 8	Number of bytes of the response (number of read words x 2)
From Byte 9	Read data

(Abnormal response)

Byte 7	FC (Function code) = 83 (HEX)
Byte 8	Exception code 01 or 02

(Example)
Reading of HR400001 (1 word). The read value is 1234 (HEX).
03 00 00 00 01 => 03 02 12 34

FC16 Write multiple registers

Writing to Holding Register (HR) consecutively

(Request)

Byte 7	FC (Function code) = 10 (HEX)
Byte 8-9	Reference No.
Byte 10-11	Number of write words (1 to 100 words)
Byte 12	Number of write bytes (2 x number of write words)
From Byte 13	Write data

(Normal response)

Byte 7	FC (Function code) = 10(HEX)
Byte 8	Reference No.
From Byte 9	Number of write words

(Abnormal response)

Byte 7	FC (Function code) = 90 (HEX)
Byte 8	Exception code 01 or 02

(Example)

Writing to HR400001 (1 word). The write value is 1234 (HEX).

10 00 00 00 01 02 12 34 => 10 00 00 00 01

FC1 Read coils

Reading of Coil (C) consecutively

(Request)

Byte 7	FC (Function code) = 01
Byte 8-9	Reference No.
Byte 10-11	Number of read bits (1 to 2000 bits)

(Normal response)

Byte 7	FC (Function code) = 01
Byte 8	Number of bytes for the response ((number of read bits +7)/8)
From Byte 9	Read data

(Abnormal response)

Byte 7	FC (Function code) = 81 (HEX)
Byte 8	Exception code 01 or 02

(Example)

Reading of C1. 1 bit. The read value is 1.

01 00 00 00 01 => 01 01 01

(Data sequence of read value)

When two or more data are read out, the read data are arranged starting from the lowest address by 8 bits (1 byte). Within any 1 byte, data in the lower address is set to the lower bit. The data in the unread bit becomes "0".

For example, when reading an 11-bit data as shown below, the read value becomes 21 03.

Address	Data	Remarks
C 1	1	Data for the 1st byte Bit pattern= 00100001 = 21 (HEX)
C 2	0	
C 3	0	
C 4	0	
C 5	0	
C 6	1	
C 7	0	
C 8	0	
C 9	1	Data for 2nd byte Bit pattern 00000011 = 03 (HEX)
C 10	1	
C11	0	

FC2 Read discrete inputs

Reading of Input Relay (I) consecutively

(Request)

Byte 7	FC (Function code)=02
Byte 8-9	Reference No.
Byte 10-11	Number of read bits (1 to 2000 bits)

(Normal response)

Byte 7	FC (Function code)=02
Byte 8	Number of bytes for the response ((number of read bits+7)/8)
From Byte 9	Read data

(Abnormal response)

Byte 7	FC (Function code)=82 (HEX)
Byte 8	Exception code 01 or 02

(Example)

Reading of I100001. 1 bit. The read value is 1.

02 00 00 00 01 => 02 01 01

(Data sequence for read value)

The data sequence for the read value is similar to that of FC1 Read Coils.

FC4 Read input registers

Reading of Input Register (IR) consecutively

(Request)

Byte 7	FC (Function code)=04
Byte 8-9	Reference No.
Byte 10-11	Number of read words (1 to 125 words)

(Normal response)

Byte 7	FC (Function code)=04
Byte 8	Number of bytes for the response (number of read words x 2)
From Byte 9	Read data

(Abnormal response)

Byte 7	FC (Function code)=84 (HEX)
Byte 8	Exception code 01 or 02

(Example)

Reading of IR300001 (1 word). The read value is 1234 (HEX).

04 00 00 00 01 => 04 02 12 34

FC5 Write coil

Writing to a single Coil (C)

(Request)

Byte 7	FC (Function code)=05
Byte 8-9	Reference No.
Byte 10	Write value (FF when write value is 1, and 00 when write value is 0)
Byte 11	Fixed value 00

(Normal response)

Byte 7	FC (Function code)=05
Byte 8-9	Reference No.
Byte 10	Write value (FF when write value is 1, and 00 when write value is 0)
Byte 11	Fixed value 00

(Abnormal response)

Byte 7	FC (Function code)=85 (HEX)
Byte 8	Exception code 01 or 02

(Example)

Writing of C1 (1 bit). The write value is 1.

05 00 00 FF 00 => 05 00 00 FF 00

FC6 Write single register

Writing to a single Holding Register (HR)

(Request)

Byte 7	FC (Function code) = 06 (HEX)
Byte 8-9	Reference No.
Byte 10-11	Write data

(Normal response)

Byte 7	FC (Function code) = 06 (HEX)
Byte 8-9	Reference No.
Byte 10-11	Write data

(Abnormal response)

Byte 7	FC (Function code)=86 (HEX)
Byte 8	Exception code 01 or 02

(Example)

Writing to HR400001. The write value is 1234 (HEX).

06 00 00 12 34 => 06 00 00 12 34

FC7 Read exception status

Reading of exception status (Bit 0 to 7 of HR400001)

(Request)

Byte 7	FC (Function code)=07 (HEX)

(Normal response)

Byte 7	FC (Function code)=07 (HEX)
Byte 8	Value of exception status

(Abnormal response)

Byte 7	FC (Function code)= 87 (HEX)
Byte 8	Exception code 01 or 02

(Communication example)
Reading of exception status. The read value is 34 (HEX).
07 => 07 34

The Read exception status function reads the data from the device holding special status information using the MODBUS/TCP protocol. Since the MICRO/I does not have special registers, the exception status is read by bit 0 to 7 of HR400001.

12.5.6.5 Exception code

The following table describes the exception codes that are sent upon an abnormal response.

Exception code	Name	Description
01	ILLEGAL FUNCTION	Indicates that a function code that is not defined by the MODBUS/TCP protocol or a function code that is not supported by the MICRO/I is designated.
02	ILLEGAL DATA ADDRESS	The address information included in the data is invalid. For example, when reading the number of read words starting from the starting reference No. for the read, this exception code is sent if the data exceeds the maximum address of the device.
03	ILLEGAL DATA VALUE	The value of the data is invalid. This exception code is also sent when the number of data is invalid.

13 Panasonic(AROMAT)

13.1 Connection Table

13.1.1 Compatible PLCs

Manufacturer	Series Name	System (CPU unit)	Link Unit	WindO/I-NV2 Setting Name		
				Interface	Flow Control	Host I/F Driver
Panasonic(AROMAT)	FP Series	FP0	Not required (Connects to CPU unit directly)	RS-232C (Connection Diagram 13-1)	Hardware	MEWNET
		FP1	Not required (Connects to RS-232C Port)	RS-232C (Connection Diagram 13-2)		
			Not required (Connects to CPU unit directly)	RS-232C (AFP8550) (Connection Diagram 13-3)		
			Not required (Connects to CPU unit directly)	RS-422 (Connection Diagram 13-4)		
		FPΣ	Not required (Connects to CPU unit directly)	RS-232C (Connection Diagram 13-1)		
			Used Communication cassette AFPG801	RS-232C (Connection Diagram 13-5)		
			Used Communication cassette AFPG802	RS-232C (Connection Diagram 13-6)		
			Used Communication cassette AFPG803	RS-485-2 (Connection Diagram 13-7)		

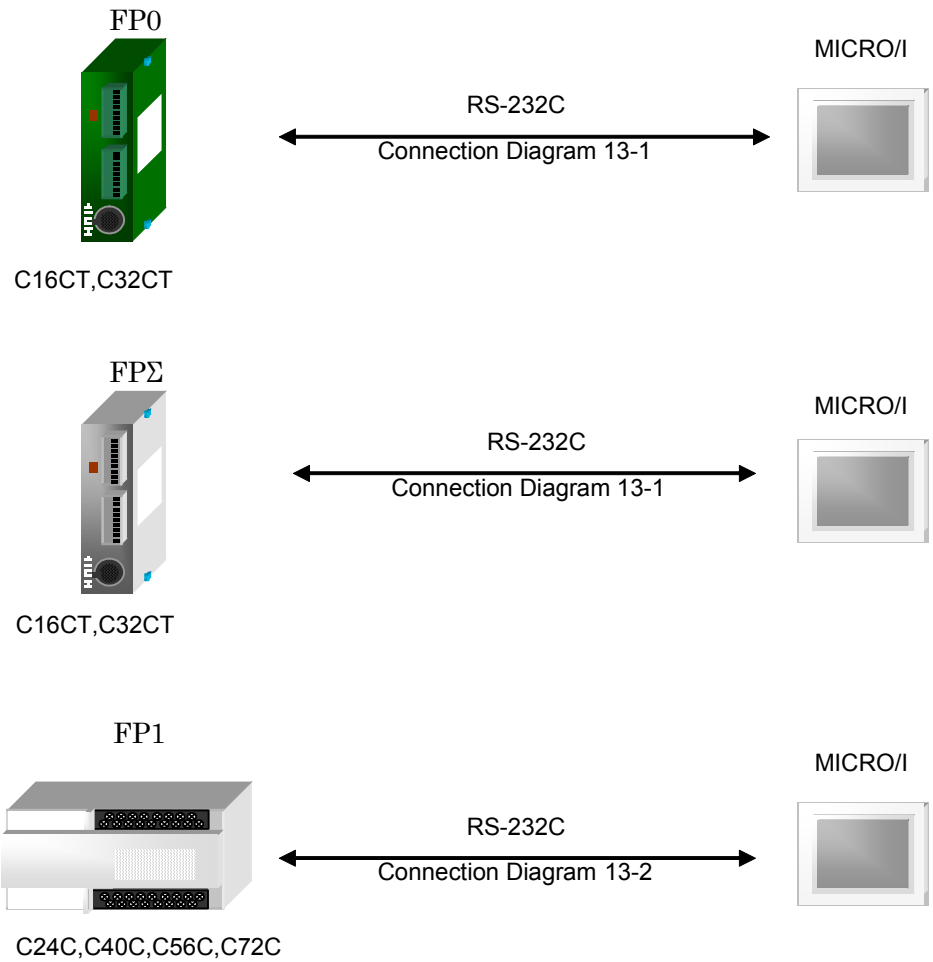
Manufacturer	Series Name	System (CPU unit)	Link Unit	WindO/I-NV2 Setting Name		
				Interface	Flow Control	Host I/F Driver
Panasonic(AROMAT)	FP Series	FP10, FP10SH	Not required (Connects to Tool Pot or Com Port)	RS-232C (Connection Diagram 13-8)	Hardware	MEWNET
			AFP3462			
		FP2, FP2SH	Not required (Connects to Com Port)			
			AFP2462			

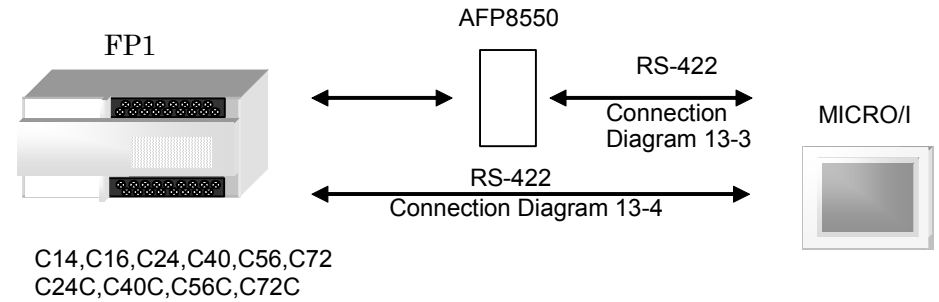
* We tested with the PLC of underline part.

13.2 System Configuration

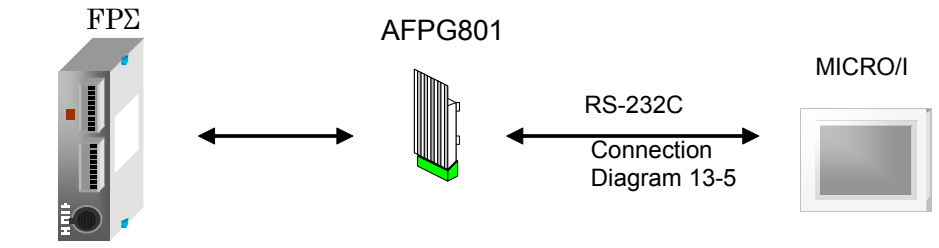
This is the system configuration for connection of Panasonic(AROMAT) PLCs to the MICRO/I.

13.2.1 AROMAT

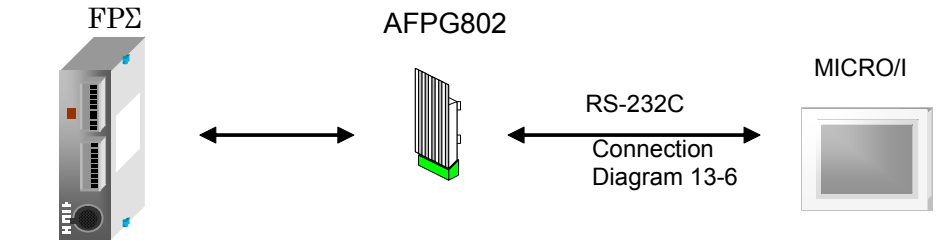




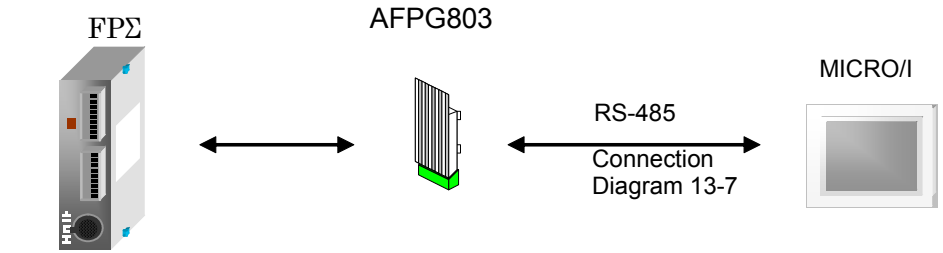
C14,C16,C24,C40,C56,C72
C24C,C40C,C56C,C72C



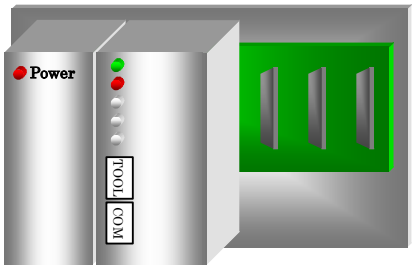
C32T,C24R2,C32T2



C32T,C24R2,C32T2



C32T,C24R2,C32T2



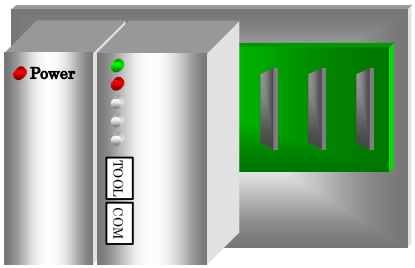
RS-232C

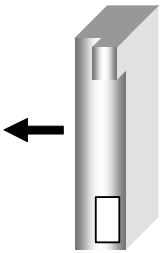
Connection Diagram 13-8

MICRO/I

FP2, FP2SH

FP10, FP10SH





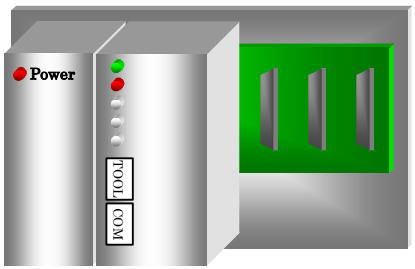
AFP3462

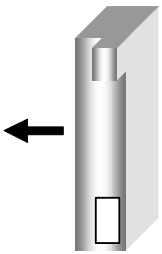
RS-232C

Connection Diagram 13-8

MICRO/I

FP10, FP10SH





AFP2462

RS-232C

Connection Diagram 13-8

MICRO/I

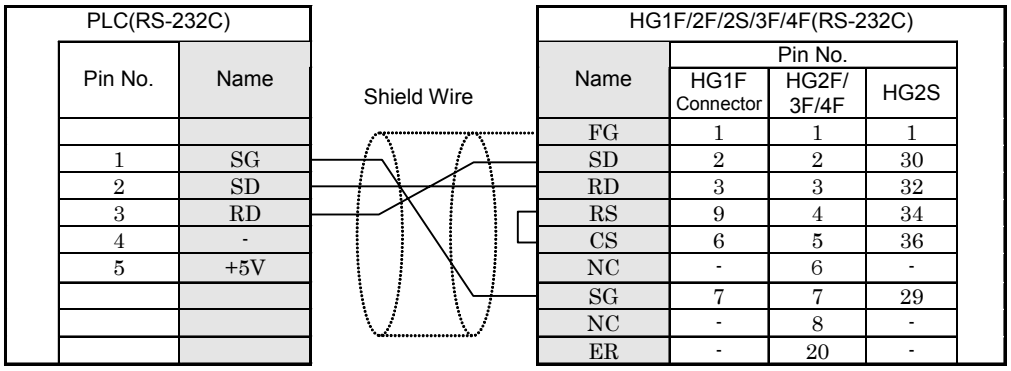
FP2, FP2SH

Chap.2

13.3 Connection Diagram

The connector types given in the Connection Diagrams are for the unit and not for the cable. For details regarding wiring, refer to "3 Important Points Regarding Wiring" in Chapter 1.

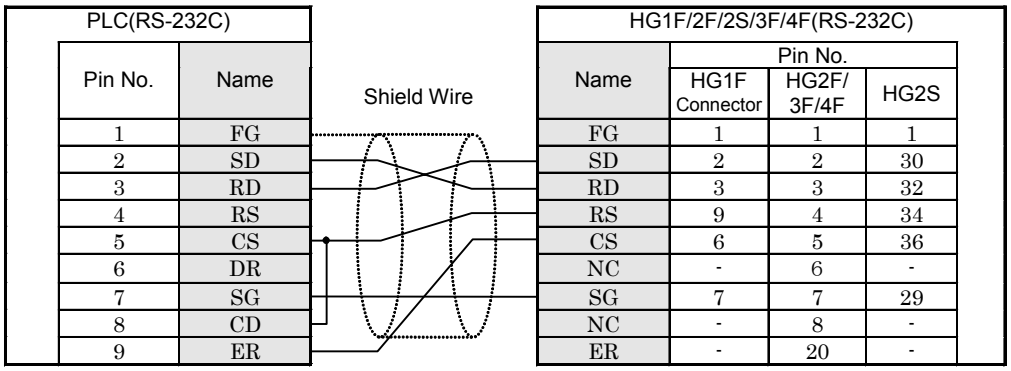
Connection Diagram 13-1: FP0, FPΣ-MICRO/I



Mini DIN 5P socket type

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

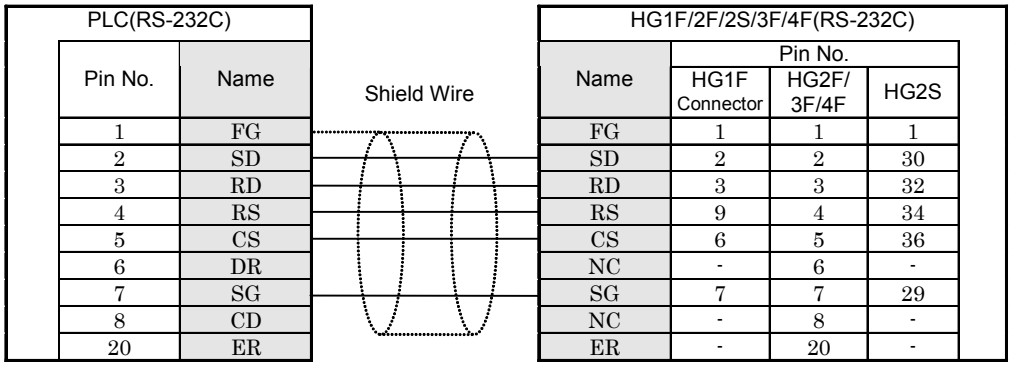
Connection Diagram 13-2: FP1 (RS232C Port)-MICRO/I



D-sub, 9P connector socket type

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

Connection Diagram 13-3: FP1 (AFP8550)-MICRO/I

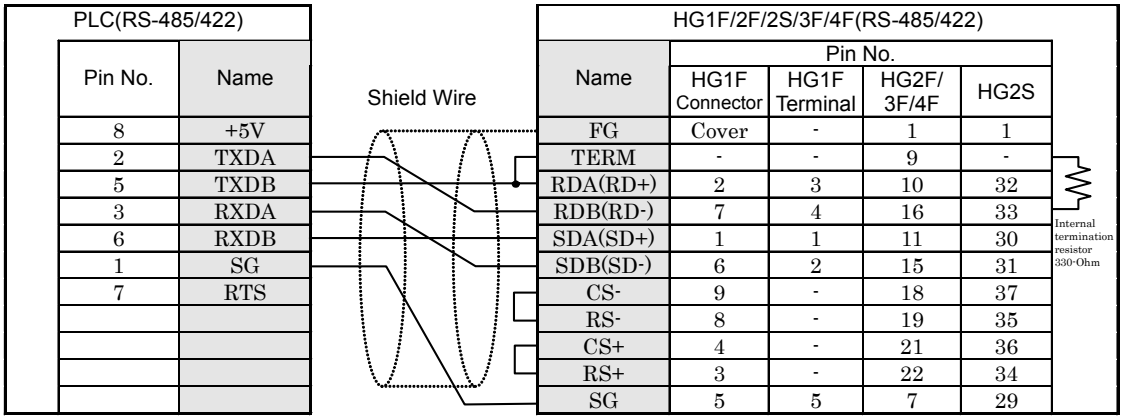


D-sub, 25P connector plug type

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

This figure shows the connection diagram when using the cable (AFP8550) from AROMAT
In D sub connector of AFP8550, D sub connector of a plug type and MICRO/I main part is a socket type. (In case you create a cable, as for the AFP8550 side, the socket type and MICRO/I side should use plug type D sub connector.)

Connection Diagram 13-4 : FP1－MICRO/I



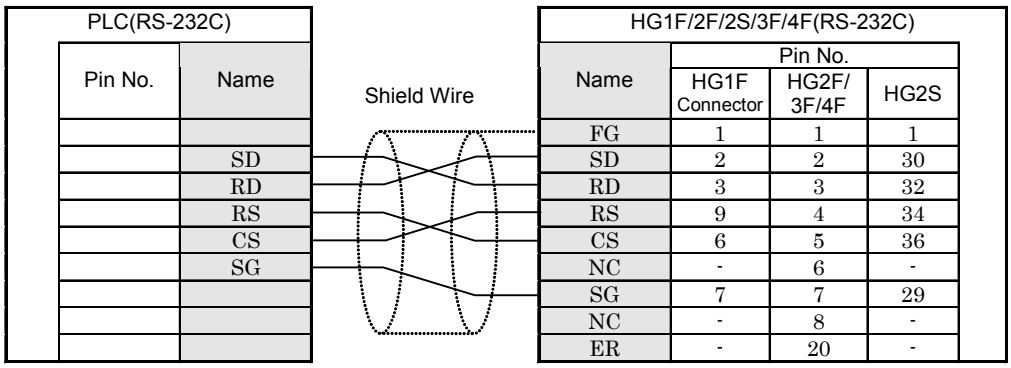
Mini DIN 8P socket type

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

- There is no pin No. corresponding to TERM on the HG1F/HG2S. When inserting a termination resistor, use a communication switch. For the setting of the switch, refer to "3 Important Points Regarding Wiring" in Chapter 1.

WARNING When you use the Terminal Block type of HG1F, make sure to configure the Hardware Flow control to NONE because the HG1F doesn't have control lines.

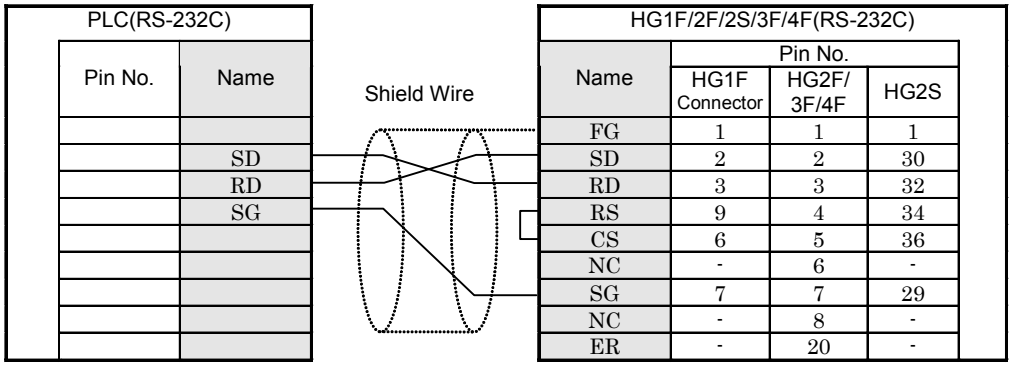
Connection Diagram 13-5: FPΣ- Communication cassette (AFPG801)-MICRO/I



Screw terminal block

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

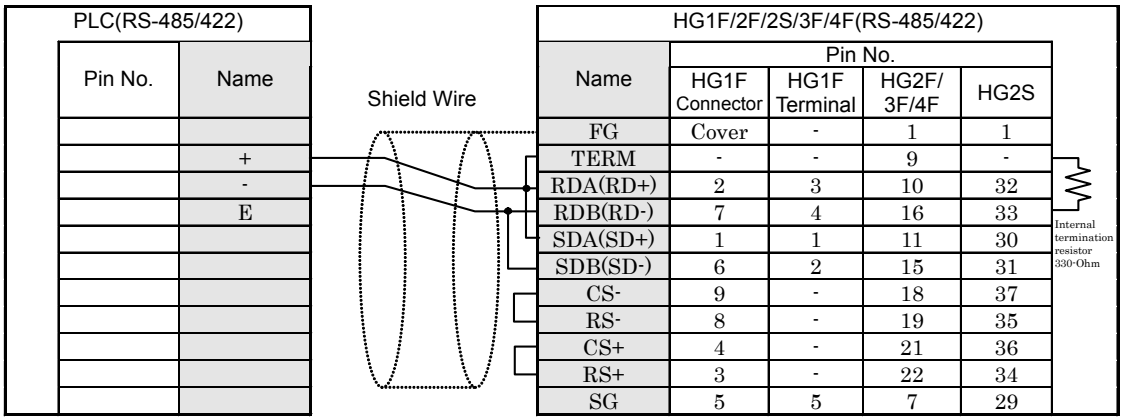
Connection Diagram 13-6: FPΣ- Communication cassette (AFPG802)-MICRO/I



Screw terminal block

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

Connection Diagram 13-7: FPΣ- Communication cassette (AFPG803)-MICRO/I



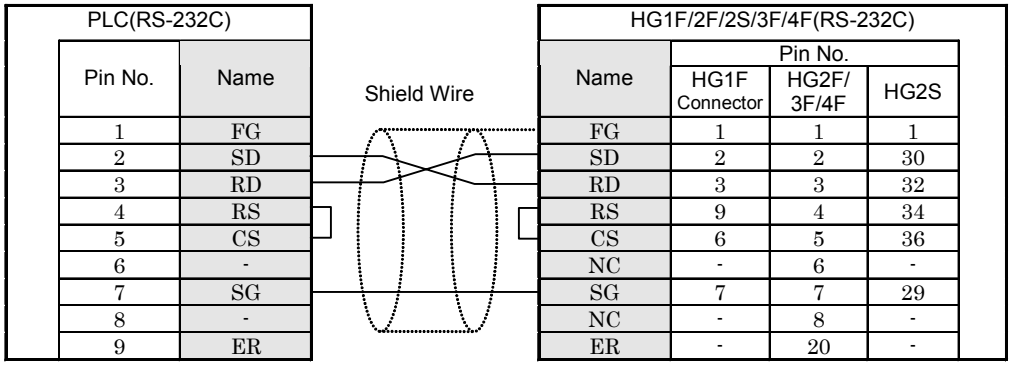
Screw terminal block

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

- There is no pin No. corresponding to TERM on the HG1F/HG2S. When inserting a termination resistor, use a communication switch. For the setting of the switch, refer to "3 Important Points Regarding Wiring" in Chapter 1.

WARNING When you use the Terminal Block type of HG1F, make sure to configure the Hardware Flow control to NONE because the HG1F doesn't have control lines.

Connection Diagram 13-8: FP2, FP2SH, FP10, FP10SH - MICRO/I



D-sub, 9P connector plug type

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

13.4 Environment Settings

13.4.1 AROMAT FP series

13.4.1.1 FP0 and FP1 (tool port on CPU unit).

Items		Details	
Serial Interface	Use the same settings as for the MICRO/I.	RS-232C	RS-422(4wire)
Slave Address		01 – 99(DEC) (*1)	
Baud Rate (bps)		9600/19200	
Data Bits (bit)		8	
Parity		Odd	
Stop Bits (bit)		1	
Flow Control		Hardware/None	

(*1) There are some models that don't support Slave Address up to 99.

13.4.1.2 FP1 (RS-232C port on CPU unit)

Items		Details
Serial Interface	Use the same settings as for the MICRO/I.	RS-232C
Slave Address		01 – 99(DEC)
Baud Rate (bps)		1200/2400/4800/9600/19200
Data Bits (bit)		7,8
Parity		None, Even, Odd
Stop Bits (bit)		1 / 2
Flow Control		Hardware/None

13.4.1.3 FPΣ (Tool port on CPU unit or communication cassette)

Items		Details	
Serial Interface	Use the same settings as for the MICRO/I.	RS-232C	RS-485(2wire)
Slave Address		01 – 99 (DEC)	
Baud Rate (bps)		2400/4800/9600/19200/38400/57600/115200	
Data Bits (bit)		7,8	
Parity		None, Even, Odd	
Stop Bits (bit)		1 / 2	
Flow Control		Hardware/None	

13.4.1.4 FP10 and FP10SH (tool port on CPU unit).

Items		Details
Serial Interface	Use the same settings as for the MICRO/I.	RS-232C
Slave Address		1 – 32(DEC)
Baud Rate (bps)		9600/19200
Data Bits (bit)		7,8
Parity		Odd
Stop Bits (bit)		1
Flow Control		Hardware/None

13.4.1.5 FP2, FP2SH, FP10 and FP10SH (Communication port on CPU unit)

Items		Details
Serial Interface	Use the same settings as for the MICRO/I.	RS-232C
Slave Address		1 – 32(DEC)
Baud Rate (bps)		2400/4800/9600/19200/38400/57600/115200
Data Bits (bit)		7,8
Parity		None, Even, Odd
Stop Bits (bit)		1 / 2
Flow Control		Hardware/None

13.4.1.6 FP10 and FP10SH (Computer Communication Unit)

Items		Details
Serial Interface	Use the same settings as for the MICRO/I.	RS-232C
Slave Address		1 – 32(DEC)
Baud Rate (bps)		2400/4800/9600/19200/38400/57600/115200
Data Bits (bit)		7,8
Parity		None, Even, Odd
Stop Bits (bit)		1 / 2
Flow Control		Hardware/None

13.4.1.7 PLC FP2 and FP2SH (Computer Communication Unit)

Items		Details
Serial Interface	Use the same settings as for the MICRO/I.	RS-232C
Slave Address		1 – 32(DEC)
Baud Rate (bps)		4800/9600/19200/38400/57600/115200
Data Bits (bit)		7,8
Parity		Odd
Stop Bits (bit)		1
Flow Control		Hardware/None

13.5 Usable Devices

Types of devices supported by the MICRO/I and their ranges are shown below.

・ Bit Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Input	X	X	0 - 511F	R	(*1)
Output	Y	Y	0 - 511F	R/W	(*1)
Internal Relay	R	R	0 - 886F	R/W	(*1)
Special Internal relay	RE	R	9000 - 910F	R	(*1)
Link Relay	L	L	0 - 639F	R/W	(*1)
Timer	T	T	0 - 3071	R	Dec
Counter	C	C	0 - 3071	R	Dec
Error alarm relay	E	E	0 - 2047	R	Dec

・ Word Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Input	WX	WX	0 - 00511	R	Dec
Output	WY	WY	0 - 00511	R/W	Dec
Internal Relay	WR	WR	0 - 00886	R/W	Dec
Special Internal relay	WRE	WR	900 - 00910	R	Dec
Link Relay	WL	WL	0 - 00639	R/W	Dec
Timer, Counter (Elapsed value)	EV	EV	0 - 03071	R	Dec
Timer, Counter (Set value)	SV	SV	0 - 03071	R/W	Dec
Data register	DT	DT	0 - 99999	R/W	Dec
Link data register	LD	LD	0 - 08447	R/W	Dec
File register	FL	FL	0 - 32764	R/W	Dec(*2)

(*1) 3 figures of higher ranks are expressed by decimal,
and 1 figure of low ranks is expressed by hexadecimal.
(*2) In FP2SH, the contents of a bank 0 are written.

The device ranges may differ depending on the PLC model. Please refer to PLC Manual for supported memory ranges of the PLC.

14 YASKAWA

14.1 Connection Table

14.1.1 Compatible Motion Controllers

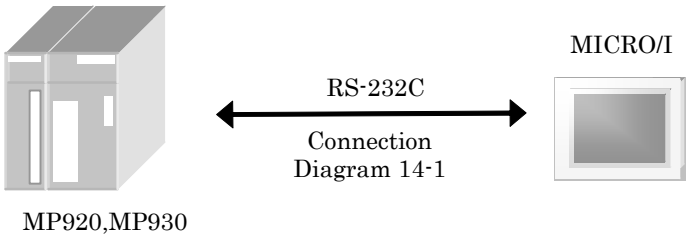
Manufacturer	Series Name	System (CPU unit)	Link Unit	WindO/I-NV2 Setting Name		
YASKAWA ELECTRIC CORPORATION	Machine Controller	MP920 MP930	Not required (connects to CPU unit)	RS-232C (Connection Diagram 14-1)	ER control	MP920_R
			217IF	RS-422 (Connection Diagram 14-2)	None	
				RS-485 (Connection Diagram 14-3)		
		MP2300	217IF-01	RS-232C (Connection Diagram 14-1)	ER control	
				RS-422 (Connection Diagram 14-4)	None	
				RS-485 (Connection Diagram 14-5)		

* We tested with the PLC of underline part.

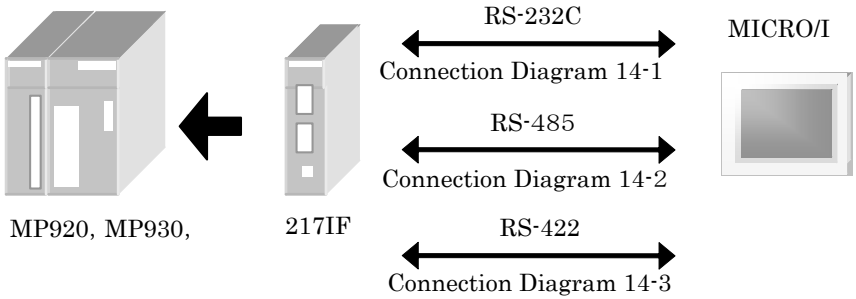
14.2 System Configuration

This is the system configuration for connection of YASKAWA ELECTRIC CORPORATION PLCs to the MICRO/I.

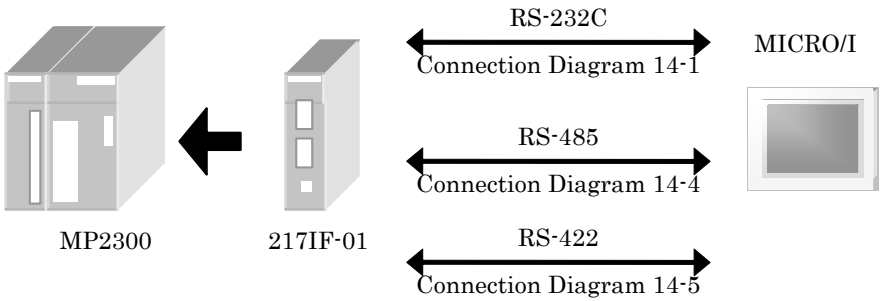
14.2.1 MP920, MP930 (connects to CPU Unit RS-232C port)



14.2.2 MP920, MP930（217IF）



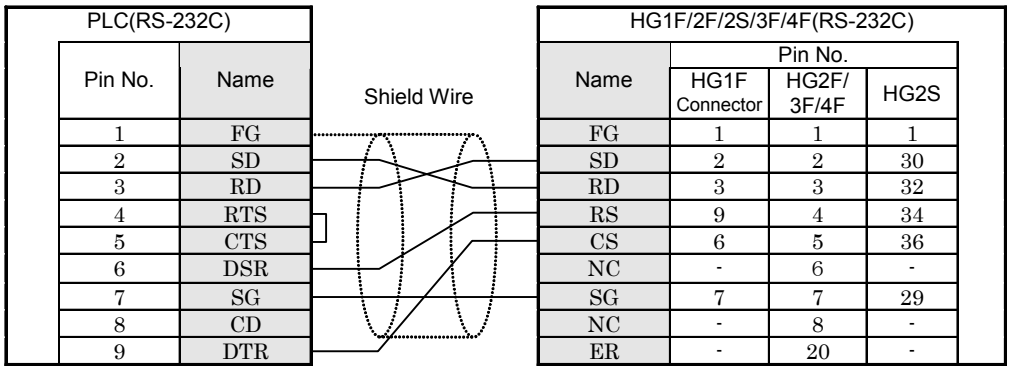
14.2.3 MP2300（217IF-01）



14.3 Connection Diagram

The connector types given in the Connection Diagrams are for the unit and not the cable. For details regarding wiring, refer to "3 Important Points Regarding About Wiring" in Chapter 1.

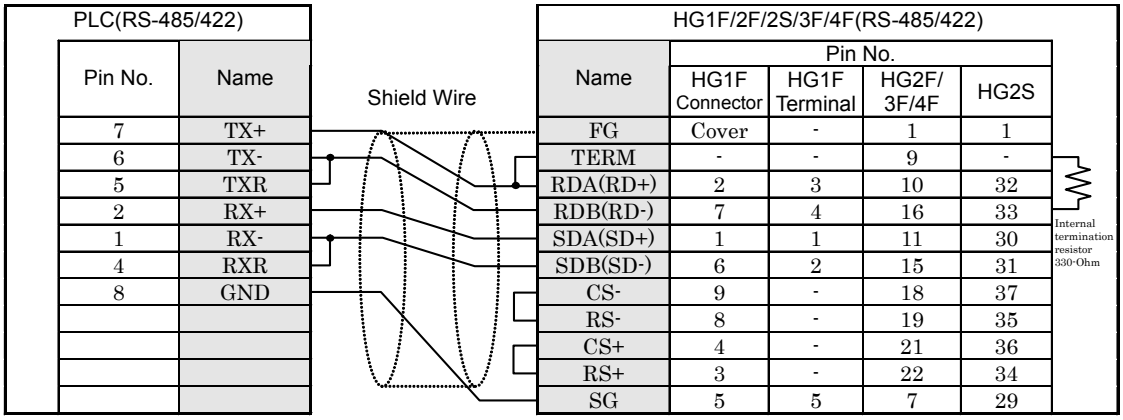
Connection Diagram 14-1: MP920, MP930, MP2300 to MICRO/I (RS-232C)



D-sub, 9P connector socket type

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

Connection Diagram 14-2：MP920,MP930（217IF） - MICRO/I(RS-422)



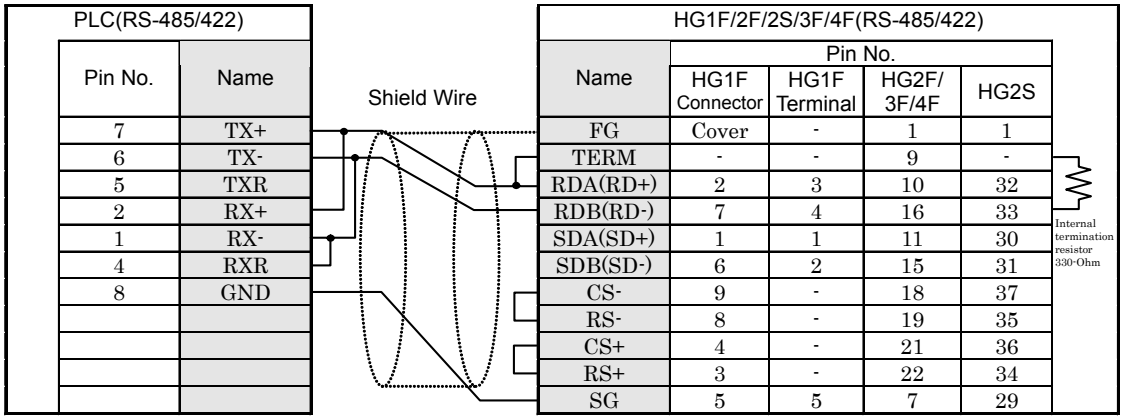
MR-8M connector

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

- There is no pin No. corresponding to TERM on the HG1F/HG2S. When inserting a termination resistor, use a communication switch. For the setting of the switch, refer to "3 Important Points Regarding Wiring" in Chapter 1.

WARNING When you use the Terminal Block type of HG1F, make sure to configure the Hardware Flow control to NONE because the HG1F doesn't have control lines.

Connection Diagram 14-3：MP920,MP930（217IF） - MICRO/I(RS-485)



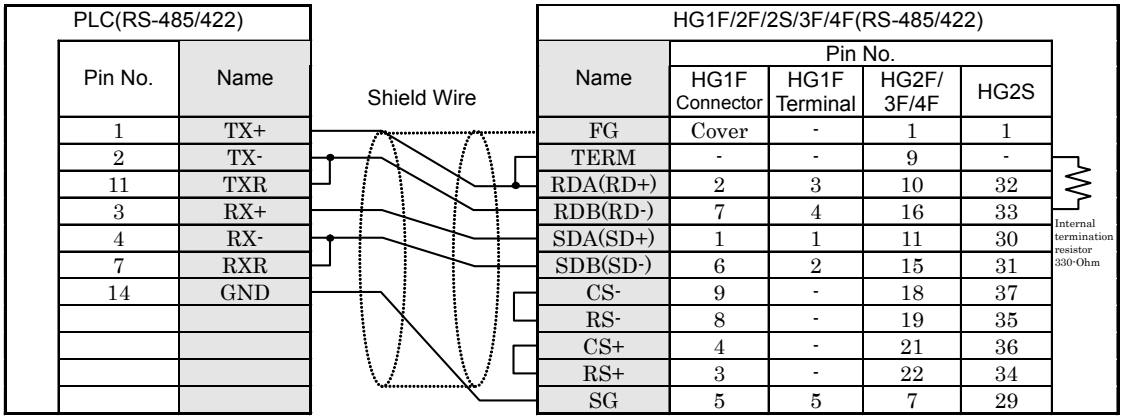
MR-8M connector

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

- There is no pin No. corresponding to TERM on the HG1F/HG2S. When inserting a termination resistor, use a communication switch. For the setting of the switch, refer to "3 Important Points Regarding Wiring" in Chapter 1.

WARNING When you use the Terminal Block type of HG1F, make sure to configure the Hardware Flow control to NONE because the HG1F doesn't have control lines.

Connection Diagram 14-4 : MP22300（217IF-01） - MICRO/I(RS-422)



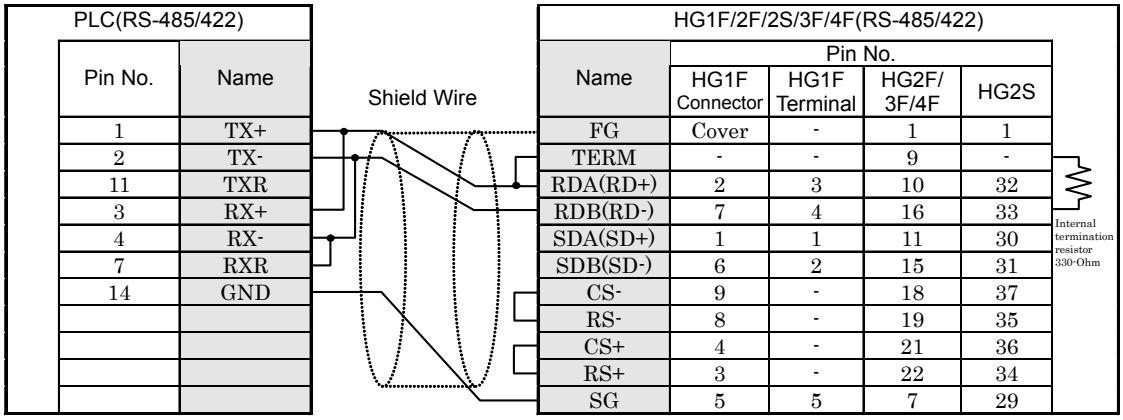
MDR14P connector

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

- There is no pin No. corresponding to TERM on the HG1F/HG2S. When inserting a termination resistor, use a communication switch. For the setting of the switch, refer to "3 Important Points Regarding Wiring" in Chapter 1.

WARNING When you use the Terminal Block type of HG1F, make sure to configure the Hardware Flow control to NONE because the HG1F doesn't have control lines.

Connection Diagram 14-5 : MP2300（217IF-01） - MICRO/I(RS-485)



MDR14P connector

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

- There is no pin No. corresponding to TERM on the HG1F/HG2S. When inserting a termination resistor, use a communication switch. For the setting of the switch, refer to "3 Important Points Regarding Wiring" in Chapter 1.

WARNING When you use the Terminal Block type of HG1F, make sure to configure the Hardware Flow control to NONE because the HG1F doesn't have control lines.

14.4 Environment Settings

14.4.1 MP920, MP930, MP2300

Items	Details
Serial Interface	RS-232C
Protocol	MEMOBUS RTU
Slave Address	1 – 63 (DEC)
Baud Rate (bps)	9600/19200
Data Bits (bit)	8 (fixed)
Parity	None, Even, Odd
Stop Bits (bit)	1, 2
Flow Control	ER control

- It is necessary to set up transmission form by the rudder program.
- Please set up the head register by the side of PLC as follows. Moreover, please give offset of each register as 0.

[Module detailed setup]

"Setup of a slave I/F register"	"Head REG"
"reading of an Inputs Status "	IW0000
"reading of an Inputs Registers "	IW0000
"reading/writing" of a Coil	MW00000
"reading/writing" of a Holding Registers	MW00000

14.5 Usable Devices

- Bit Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Coil	MB	MW	0 - 4095F	R/W	(*1)
Inputs Status	IB	IW	0 - FFFFF	R	Hexadecimal

- Word Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Holding Registers	MW	MW	0 - 65535	R/W	Decimal
Inputs Registers	IW	IW	0 - FFFF	R	Hexadecimal

(*1) Upper four digits : Register Number (decimal)
The lowest digit : Bit Number (hexadecimal)
Example : 4095F 4095 : Register Number , F : Bit Number

15 Koyo

Selecting DirectLogic DL205/205 or DirectLogic(Ethernet) for the Host I/F Driver allows the user to use the 1: N Communication function.

・1: N Communication function (→ Chapter 6 1: N Communication Function)

15.1 Connection Table

15.1.1 Compatible PLCs

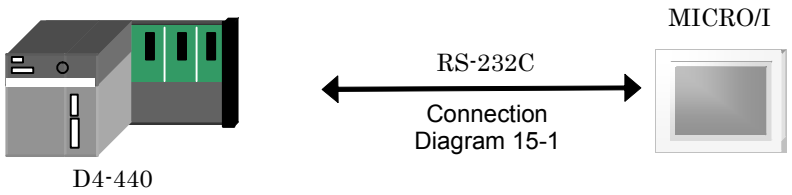
Manufacturer	Series Name	System (CPU unit)	Link Unit	WindO/I-NV2 Setting Name		
Koyo Electronics	DirectLOGIC 05	DL05	D0-ECOM D0-ECOM100	Ethernet	–	DirectLOGIC (Ethernet)
	DirectLOGIC 06	DL06				
	DirectLOGIC	D2-240 D2-250, D2-250-1, D2-260	D2-ECOM D2-ECOM-F D2-ECOM100			
	DirectLogic DL205	D2-240	Not required (connects to CPU unit)	RS-232C (Connection Diagram 15-3)	ER contro	DirectLogic DL205/405
	DirectLogic DL405	D4-430 D4-440	Not required (connects to CPU unit)	RS-232C (Connection Diagram 15-1)		
				RS-485(422)-4 (Connection Diagram 15-2)		
		D4-440	D4-DCM	RS-232C (Connection Diagram 15-1)		
		DL430 DL440 DL450	D4-ECOM D4-ECOM-F D4-ECOM100	Ethernet	–	DirectLOGIC (Ethernet)

* We tested with the PLC of underline part.

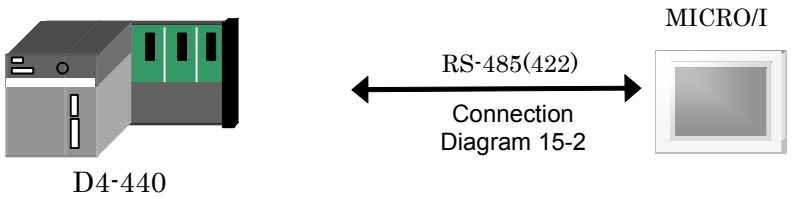
15.2 System Configuration

This is the system configuration for connection of Koyo PLCs to the MICRO/I.

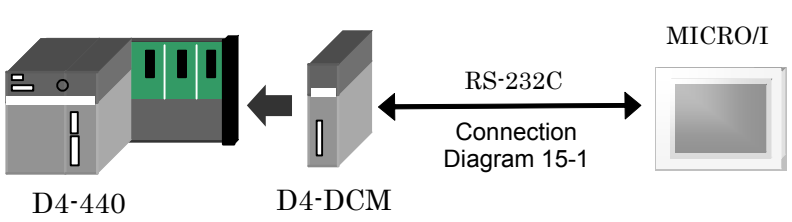
15.2.1 DirectLogic 405 (connects to CPU unit RS-232C port)



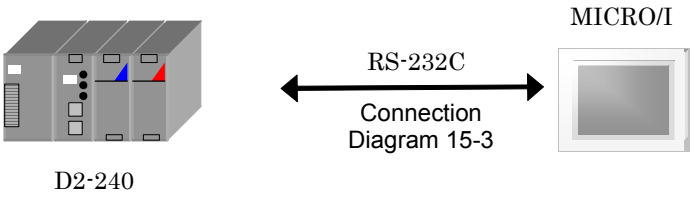
15.2.2 DirectLogic 405 (connects to CPU unit RS-422 port)



15.2.3 DirectLogic 405 (connects to DATA COMMUNICATIONS MODULE RS-232C port)



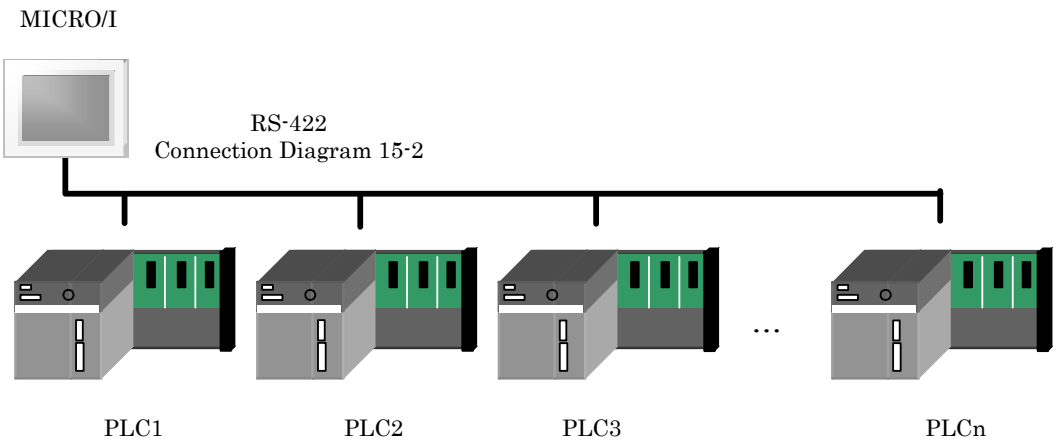
15.2.4 DirectLogic 205 (connects to CPU unit RS-232C port)



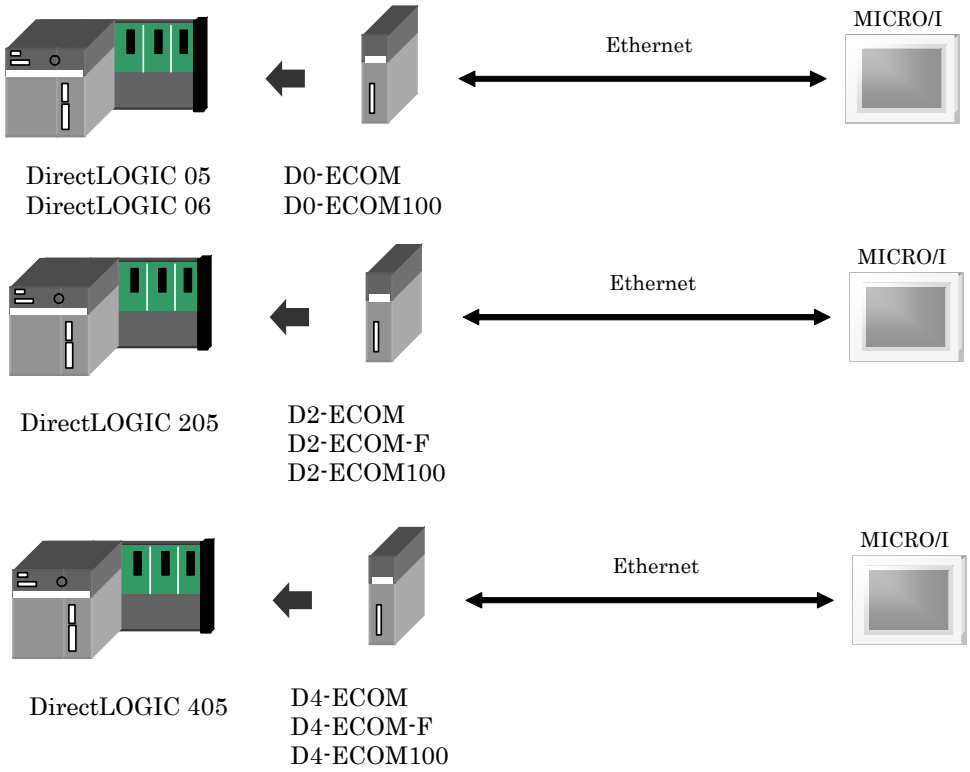
15.2.5 1: N Communication-KOSTAC SU (Connects to the general-purpose RS-422 communication port on the CPU unit)

The 1: N communication can be established by using the following connection.

KOSTAC SU (Connects to the general-purpose RS-422 communication port on the CPU unit)



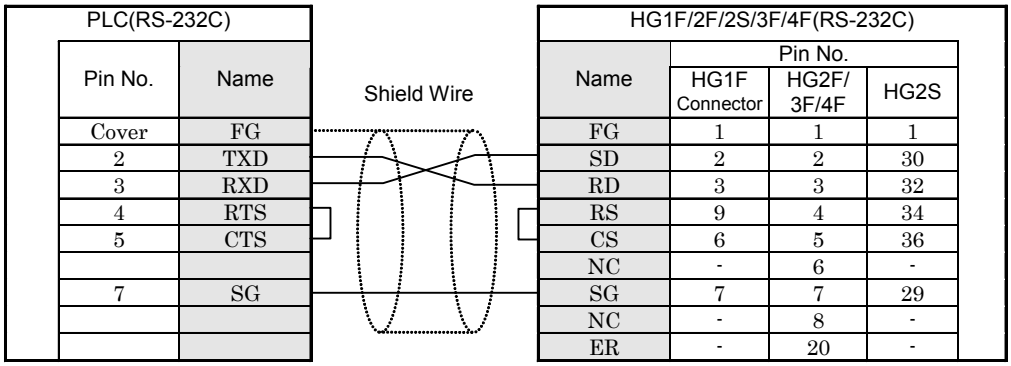
15.2.6 DirectLOGIC Series (Ethernet)



15.3 Connection Diagram

For details regarding wiring and termination resistors, refer to "3 Important Points Regarding About Wiring" in Chapter 1.

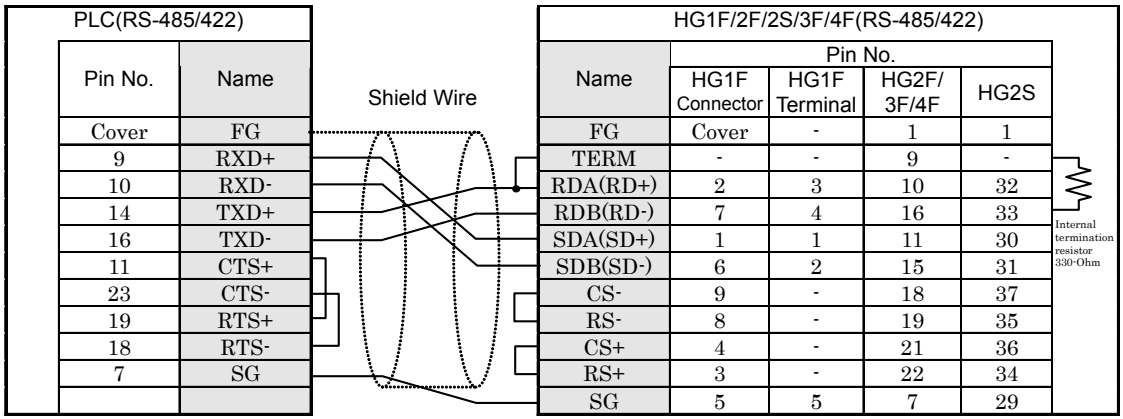
Connection Diagram 15-1: D4-440,D4-DCM(RS-232C port) to MICRO/I



D-sub, 25P socket connector
(unit side)

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

Connection Diagram 15-2: D4-440(CPU unit RS-422 port) to MICRO/I



D-sub, 25P socket connector
(unit side)

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

- There is no pin No. corresponding to TERM on the HG1F/HG2S. When inserting a termination resistor, use a communication switch. For the setting of the switch, refer to "3 Important Points Regarding Wiring" in Chapter 1.

WARNING When you use the Terminal Block type of HG1F, make sure to configure the Hardware Flow control to NONE because the HG1F doesn't have control lines.

Connection Diagram 15-3: D2-240(CPU unit RS-232C port) to MICRO/I

PLC(RS-232C)	
Pin No.	Name
6	FG
4	TXD
3	RXD
1	SG

Shield Wire

HG1F/2F/2S/3F/4F(RS-232C)			
Name	Pin No.		
	HG1F Connector	HG2F/ 3F/4F	HG2S
FG	1	1	1
SD	2	2	30
RD	3	3	32
RS	9	4	34
CS	6	5	36
NC	-	6	-
SG	7	7	29
NC	-	8	-
ER	-	20	-

6P modular connector socket type

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

15.4 Environment Settings

15.4.1 D4-440 CPU Unit Communication port

Items	Details
Serial Interface	RS-232C / RS-422
Data representation	HEX mode
Slave Address	1 - 90(DEC).
Baud Rate (bps)	9600/19200
Data Bits (bit)	8 (fixed)
Parity	None, Odd
Stop Bits (bit)	1 (fixed)
Flow Control	ER control

15.4.2 D4-DCM

Items	Details
Serial Interface	RS-232C
Data representation	HEX mode
Slave Address	1 – 90(DEC)
Baud Rate (bps)	9600/19200
Data Bits (bit)	8 (fixed)
Parity	None, Odd
Stop Bits (bit)	1 (fixed)
Flow Control	ER control

15.4.3 D2-240 CPU Unit Communication port

Items	Details
Serial Interface	RS-232C
Data representation	HEX mode
Slave Address	1 – 90(DEC)
Baud Rate (bps)	9600
Data Bits (bit)	8 (fixed)
Parity	None, Odd
Stop Bits (bit)	1 (fixed)
Flow Control	ER control

15.4.4 Ethernet Unit on DirectLOGIC

Set following Items in Project Settings Dialog.

Item	Setting
IP Address (for HG)	Set the IP Address for MICRO/I. (Set the Item in Communication Interface tab.)
Subnet Mask	Set the Subnet Mask for MICRO/I. (Set the Item in Communication Interface tab.)
Default Gateway	Set the Default Gateway for MICRO/I. (Set the Item in Communication Interface tab.)
IP Address (Ethernet Unit)	Set the IP Address for Ethernet Unit. (Set the Item in Host I/F network tab.)
Port Number (Ethernet Unit)	Set the Port Number for Ethernet Unit. (Set the Item in Host I/F network tab.)

15.5 Usable Devices

15.5.1 DL405

- Bit Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Input Points (Bit)	X	X	0 - 1777	R	8(octal)
Output Points (Bit)	Y	Y	0 - 1777	R/W	8(octal)
Control Relays (Bit)	C	C	0 - 3777	R/W	8(octal)
Stages (Bit)	S	S	0 - 1777	R/W	8(octal)
Timer Status (Bit)	TS	T	0 - 377	R	8(octal)
Counter Status (Bit)	CS	CT	0 - 377	R	8(octal)
Remote In (Bit)	GX	GX	0 - 3777	R/W	8(octal)
Remote Out (Bit)	GY	GY	0 - 3777	R/W	8(octal)
Special Relays (Bit)	SP	SP	0 - 777	R	8(octal)

・ Word Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Input Points (Word)	XW	V	40400 - 40477	R	8(octal)
Output Points (Word)	YW	V	40500 - 40577	R/W	8(octal)
Control Relays (Word)	CW	V	40600 - 40777	R/W	8(octal)
Stages (Word)	SW	V	41000 - 41077	R/W	8(octal)
Remote In (Word)	GXW	V	40000 - 40177	R/W	8(octal)
Remote Out (Word)	GYW	V	40200 - 40377	R/W	8(octal)
Special Relays (Word)	SPW	V	41200 - 41237	R	8(octal)
Timer Values	TV	V	0 - 377	R/W	8(octal)
Counter Values	CV	V	1000 - 1377	R/W	8(octal)
Data Registers	D	V	1400 - 7377	R/W	8(octal)
System Parameters1	SR1	V	700 - 777	R	8(octal)
System Parameters2	SR2	V	7400 - 7777	R	8(octal)
Ext Registers	ER	V	10000 - 37777	R/W	8(octal)

We confirm only D4-440 address range. Depending on the type of PLC that you will be using, the there are limits to the areas that can be used within the device ranges given above. Refer to the PLC manual for details.

When selecting Bit Write, operation depends on the project settings which has an option to turn off all other bits in the byte or leave all other bits without change. Check or uncheck the check box for "Bit Write operation will write to a byte." (Byte refers to 8 bits.)
Check: When executing Bit Write, all other bits in the byte are turned off. Uncheck: When executing Bit Write, all other bits are not changed. During Bit Write operation, the MICRO/I reads the byte data including the designated bit from the PLC, performs logical AND or OR operation with the designated bit, and writes the result into the PLC, therefore all other bits in the byte are not changed.

15.5.2 DL205

· Bit Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Input Points (Bit)	X	X	0 - 1777	R	8(octal)
Output Points (Bit)	Y	Y	0 - 1777	R/W	8(octal)
Control Relays (Bit)	C	C	0 - 3777	R/W	8(octal)
Stages (Bit)	S	S	0 - 1777	R/W	8(octal)
Timer Status (Bit)	TS	T	0 - 377	R	8(octal)
Counter Status (Bit)	CS	CT	0 - 377	R	8(octal)
Remote In (Bit)	GX	GX	0 - 3777	R/W	8(octal)
Remote Out (Bit)	GY	GY	0 - 3777	R/W	8(octal)
Special Relays (Bit)	SP	SP	0 - 777	R	8(octal)

・ Word Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Input Points (Word)	XW	V	40400 - 40477	R	8(octal)
Output Points (Word)	YW	V	40500 - 40577	R/W	8(octal)
Control Relays (Word)	CW	V	40600 - 40777	R/W	8(octal)
Stages (Word)	SW	V	41000 - 41077	R/W	8(octal)
Remote In (Word)	GXW	V	40000 - 40177	R/W	8(octal)
Remote Out (Word)	GYW	V	40200 - 40377	R/W	8(octal)
Special Relays (Word)	SPW	V	41200 - 41237	R	8(octal)
Timer Values	TV	V	0 - 377	R/W	8(octal)
Counter Values	CV	V	1000 - 1377	R/W	8(octal)
Data Registers	D	V	1400 - 7377	R/W	8(octal)
System Parameters1	SR1	V	400 - 777	R	8(octal)
System Parameters2	SR2	V	7400 - 7777	R	8(octal)
Ext Registers	ER	V	10000 – 35777	R/W	8(octal)

We confirm only D2-240 address range. Depending on the type of PLC that you will be using, the there are limits to the areas that can be used within the device ranges given above. Refer to the PLC manual for details.

When selecting Bit Write, operation depends on the project settings which has an option to turn off all other bits in the byte or leave all other bits without change. Check or uncheck the check box for "Bit Write operation will write to a byte." (Byte refers to 8 bits.)
Check: When executing Bit Write, all other bits in the byte are turned off. Uncheck: When executing Bit Write, all other bits are not changed. During Bit Write operation, the MICRO/I reads the byte data including the designated bit from the PLC, performs logical AND or OR operation with the designated bit, and writes the result into the PLC, therefore all other bits in the byte are not changed.

15.5.3 DirectLOGIC,KOSTAC-SU(Ethernet)

- Bit Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Input Points(Bit)	X	X	0 – 1777	R	8
Output Points(Bit)	Y	Y	0 – 1777	R/W	8
Control Relays(Bit)	C	C	0 – 3777	R/W	8
Special Relays(Bit)	SP	SP	0 – 777	R	8
Timers(Bit)	T	T	0 – 377	R	8
Counters(Bit)	CT	CT	0 – 377	R	8
Stages(Bit)	S	S	0 – 1777	R/W	8
Remote Input(Bit)	GX	GX	0 – 3777	R/W	8
Remote Output(Bit)	GY	GY	0 – 3777	R/W	8

WARNING

- Important points to note regarding setting performing Bit Write operations

- With a Bit Write operation, the word data is first read from the PLC, and a logic operation (AND or OR) is performed on the relevant bit before writing it to the PLC to ensure that the values of other bits in the same channel are preserved. However, be certain that the PLC does not modify the data in the channel during the time that the MICRO/I is writing the data.

· Word Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Input Points(Word)	VX	V	40400 – 40477	R	8
Output Points(Word)	VY	V	40500 – 40577	R/W	8
Control Relays(Word)	VC	V	40600 – 40777	R/W	8
Special Relays(Word)	VSP	V	41200 – 41237	R	8
Timers(Word)	VT	V	41100 – 41117	R	8
Counters(Word)	VCT	V	41140 – 41157	R	8
Stages(Word)	VS	V	41000 – 41077	R/W	8
Timer Current Values	TA	V	0 – 377	R/W	8
Counter Current Values	CTA	V	1000 – 1377	R/W	8
Data Words	V	V	400 – 777 1200 – 7577 10000 – 35777	R/W	8
System parameters	VSYS	V	700 – 777 7400 – 7777 36000 – 37777	R	8
Remote Input(Word)	VGI	V	40000 – 40177	R/W	8
Remote Output(Word)	VGY	V	40200 – 40377	R/W	8

16 FANUC

16.1 Connection Table

16.1.1 Compatible PLCs

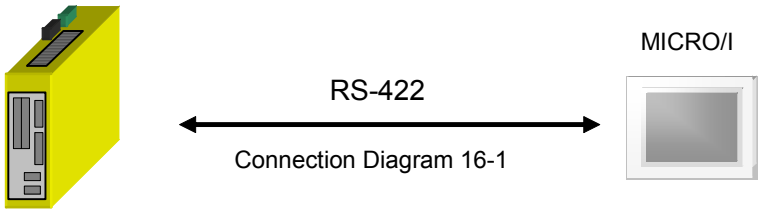
Manufacturer	Series Name	System (CPU unit)	Link Unit	WindO/I-NV2 Setting Name		
FANUC	Power Mate	Power Mate-MODEL D	Not required	RS-422 (Connection Diagram 16-1)	ER control	Power Mate-MODEL D /Series 16i
	Series	16i, 160i 18i, 180i, 30i, 31i, 32i	Not required	RS-232C (Connection Diagram 16-2)	ER control	

* We tested with the PLC of underline part.

16.2 System Configuration

This is the system configuration for connection of FANUC PLCs to the MICRO/I.

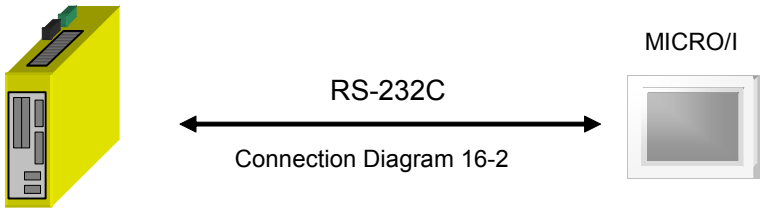
16.2.1 Power Mate-MODEL D



Power Mate-MODEL D

A touch-panel connection module (FANUC A20B-2902-0470) is needed for Power Mate-MODEL D.

16.2.2 Series 16i,160i,18i,180i,30i,31i,32i

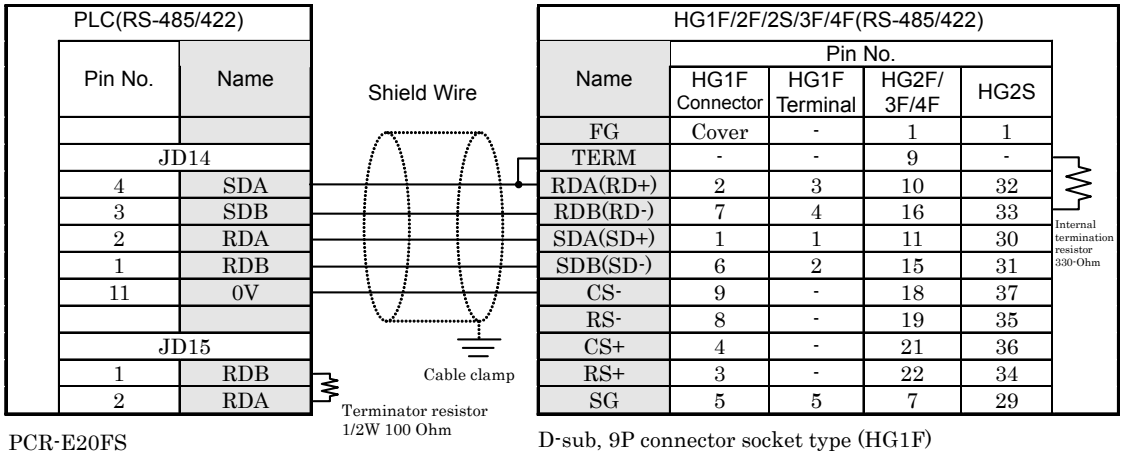


Series 16i,160i,18i,180i,30i,31i,32i

16.3 Connection Diagram

For details regarding wiring and termination resistors, refer to "3 Important Points Regarding About Wiring" in Chapter 1.

Connection Diagram 16-1: Power Mate-MODEL D to MICRO/I



PCR-E20FS
(HONDA TSUSHIN KOGYO CO., LTD

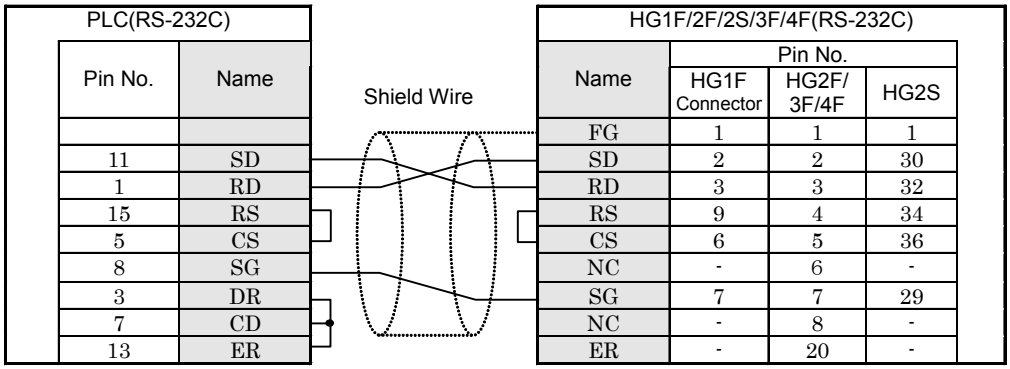
D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

WARNING Connect a terminus unit to JD15 by the side of PowerMate. Refer to the manual of PowerMate-MODEL D for the details about a terminus unit.
FG terminal of the main part of a motion controller should perform the 3rd-sort grounding.
Ground a shield by the cable clamp.

WARNING - There is no pin No. corresponding to TERM on the HG1F/HG2S. When inserting a termination resistor, use a communication switch. For the setting of the switch, refer to "3 Important Points Regarding Wiring" in Chapter 1.

WARNING When you use the Terminal Block type of HG1F, make sure to configure the Hardware Flow control to NONE because the HG1F doesn't have control lines.

Connection Diagram 16-2: Series 16i,160i,18i,180i,30i,31i,32i to MICRO/I



PCR-E20FS
(HONDA TSUSHIN KOGYO.,LTD)

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

16.4 Environment Settings

16.4.1 Power Mate-MODEL D

Items	Details
Serial Interface	RS422-4wire
Slave Address	0(Fixed)
Baud Rate (bps)	19200(Fixed)
Data Bits (bit)	8(Fixed)
Parity	Even (Fixed)
Stop Bits (bit)	1(Fixed)

16.4.2 Series 16i,160i,18i,180i,30i,31i,32i

Items	Details
Serial Interface	RS-232C
Slave Address	0(Fixed)
Baud Rate (bps)	19200(Fixed)
Data Bits (bit)	8(Fixed)
Parity	Even (Fixed)
Stop Bits (bit)	1(Fixed)

16.5 Usable Devices

16.5.1 Power Mate-MODEL D, Series 16i,160i,18i,180i,30i,31i,32i

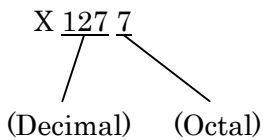
・ Bit Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Input Relay	X	X	0 – 99997	R/W	(*1)
Output Relay	Y	Y	0 – 99997	R/W	(*1)
Int. Relay	R	R	0 – 99997	R/W	(*1)
Keep Relay	K	K	0 – 99997	R/W	(*1)
Expansion Relay	E	E	0 – 99997	R/W	(*1)

・ Word Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Input Relay	XW	X	0 – 9998	R/W	Dec (*2)
Output Relay	YW	Y	0 – 9998	R/W	Dec (*2)
Int. Relay	RW	R	0 – 9998	R/W	Dec (*2)
Keep Relay	KW	K	0 – 9998	R/W	Dec (*2)
Timer	T	T	0 – 9998	R/W	Dec (*2)
Counter	C	C	0 – 9998	R/W	Dec (*2)
Data Table	D	D	0 – 9998	R/W	Dec (*2)
Expansion Relay	EW	E	0 – 9998	R/W	Dec (*2)

(*1) Please specify in the following ranges.



(*2) Word device address increase +2.

The devices and the device ranges may differ depending on the PLC model. Please refer to the PLC manual for details.

17 YOKOGAWA

17.1 Connection Table

17.1.1 Compatible PLCs

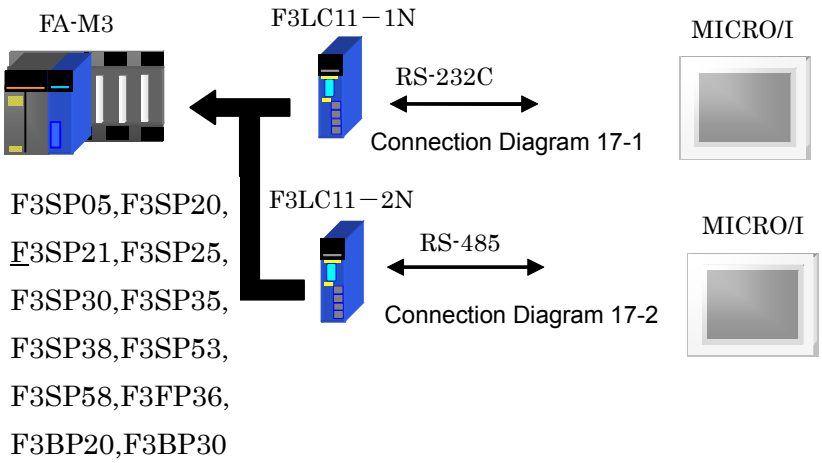
Manufacturer	Series Name	System (CPU unit)	Link Unit	WindO/I-NV2 Setting Name		
YOKOGAWA	FA-M3	FA-M3 (F3SP05,F3SP20, F3SP21,F3SP25, F3SP30,F3SP35, F3SP38,F3SP53, F3SP58,F3FP36, F3BP20,F3BP30)	F3LC11-1N	RS-232C (Connection Diagram 17-1)	Hardware	FA-M3
			F3LC11-2N	RS-485 (Connection Diagram 17-2)	None	
		FA-M3 (F3SP05,F3SP21, F3SP25,F3SP28, F3SP35,F3SP38, F3SP53,F3SP58)	Not required	RS-232C (Connection Diagram 17-3)	Hardware	

* We tested with the PLC of underline part.

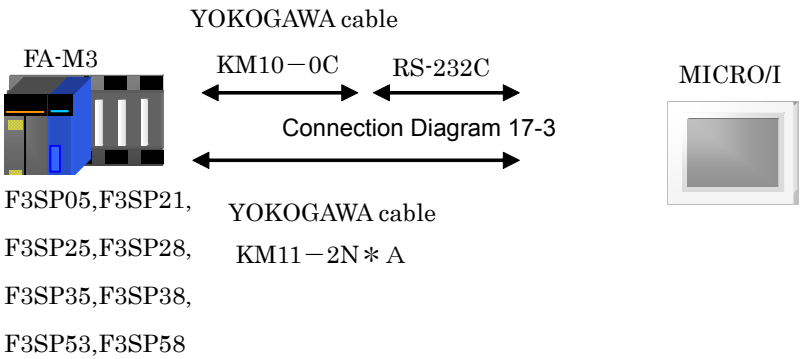
17.2 System Configuration

This is the system configuration for connection of YOKOGAWA PLCs to the MICRO/I.

17.2.1 YOKOGAWA



We recommend F3LC11-2N side to carry a "4-WIRE" setup of the terminus resistance (TERMINATOR) in long-distance transmission.



It connects with the port for programming tools of a CPU unit.

It does not correspond to "CPU direct connection system" of F3SP20 and F3SP30.

17.3 Connection Diagram

The connector types given in the Connection Diagrams are for the unit and not the cable. For details regarding wiring, refer to "3 Important Points Regarding About Wiring" in Chapter 1.

Connection Diagram 17-1: FA-M3 F3LC11-1N — MICRO/I

PLC(RS-232C)

Pin No.	Name
Hood	FG
2	RD
3	SD
7	RS
8	CS
4	ER
5	SG
1	CD
6	DR

Shield Wire

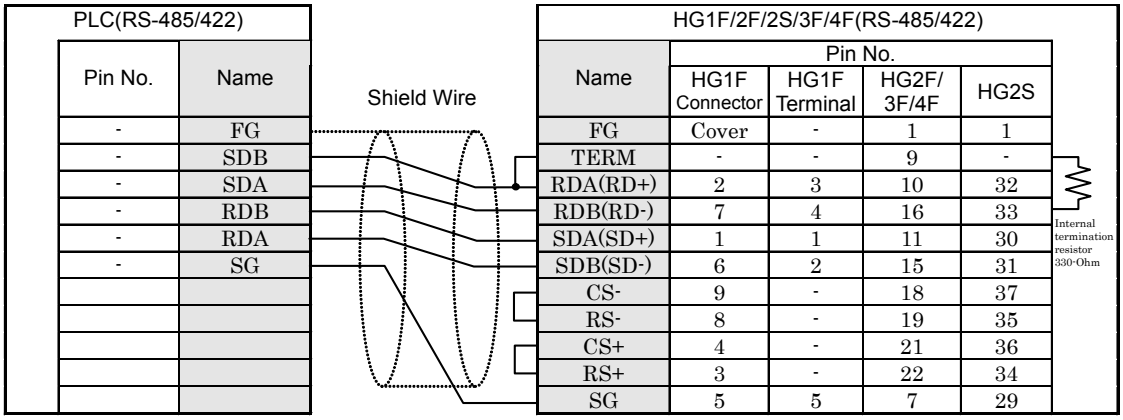
HG1F/2F/2S/3F/4F(RS-232C)

Name	Pin No.		
	HG1F Connector	HG2F/ 3F/4F	HG2S
FG	1	1	1
SD	2	2	30
RD	3	3	32
RS	9	4	34
CS	6	5	36
NC	-	6	-
SG	7	7	29
NC	-	8	-
ER	-	20	-

D-sub, 9P connector socket type

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

Connection Diagram 17-2: FA-M3 F3LC11-2N — MICRO/I



Screw terminal block

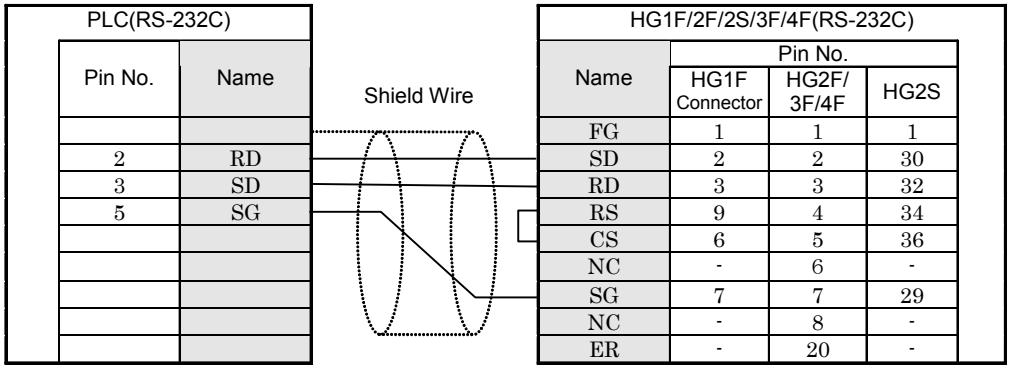
D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

- There is no pin No. corresponding to TERM on the HG1F/HG2S. When inserting a termination resistor, use a communication switch. For the setting of the switch, refer to "3 Important Points Regarding Wiring" in Chapter 1.

In MICRO/I and PLC, the name of A pole and B pole is reverse.

When you use the Terminal Block type of HG1F, make sure to configure the Hardware Flow control to NONE because the HG1F doesn't have control lines.

Connection Diagram 17-3: FA-M3 — MICRO/I



D-sub, 9P connector socket type

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

17.4 Environment Settings

17.4.1 YOKOGAWA FA-M3

YOKOGAWA FA-M3 - Link Unit (F3LC11-1N, F3LC112N) to MICRO/I Setting

Items		Details	
Serial Interface	Use the same settings as for the MICRO/I.	RS-232C	RS-485 (4wire)
CPU Number		01(0x01) – 4(0x04)	
Station Number		01(DEC)	
Baud Rate (bps)		9600/19200	
Data Bits (bit)		7,8	
Parity		Odd/Even/None	
Stop Bits (bit)		1 / 2	
Sum check		Enable	
Terminus character specification		Enable	
Protection function		Disable	

YOKOGAWA FA-M3 CPU (Programming tool port) to MICRO/I Setting

Items		Details
Serial Interface	Use the same settings as for the MICRO/I.	RS-232C
Station Number		01(DEC) (Fixed)
Baud Rate (bps)		9600/19200
Data Bits (bit)		8 (Fixed)
Parity		Even/None
Stop Bits (bit)		1 (Fixed)
Sum check		Enable
Terminus character specification		Enable

17.5 Usable Devices

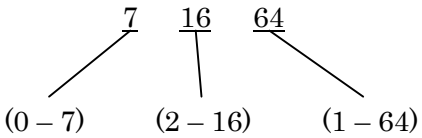
・ Bit Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Input Relay	X	X	201 - 71664	R	(*1)
Output Relay	Y	Y	201 - 71664	R/W	(*1)
Int. Relay	I	I	1 - 65535	R/W	Dec
Comm. Relay	E	E	1 - 4096	R/W	Dec
Link Relay	L	L	1 - 78192	R/W	(*2)
Spec. Relay	M	M	1 - 9984	R/W	Dec
Timer Relay	TU	T	1 - 3072	R	Dec
Counter Relay	CU	C	1 - 3072	R	Dec

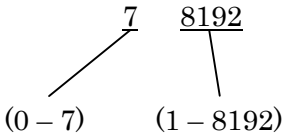
・ Word Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Input Relay	XW	X	201 - 71649	R	(*3)
Output Relay	YW	Y	201 - 71649	R/W	(*3)
Int. Relay	IW	I	1 - 65521	R/W	Dec
Comm. Relay	EW	E	1 - 4081	R/W	Dec
Link Relay	LW	L	1 - 78177	R/W	(*4)
Spec. Relay	MW	N	1 - 9969	R/W	Dec
Timer (Current Value)	TP	T	1 - 3072	R/W	Dec
Timer (Preset Value)	TS	T	1 - 3072	R	Dec
Counter (Current Value)	CP	C	1 - 3072	R/W	Dec
Counter (Preset Value)	CS	C	1 - 3072	R	Dec
Data Register	D	D	1 - 65536	R/W	Dec
Comm. Register	R	R	1 - 4096	R/W	Dec
File Register	B	B	1 - 99999	R/W	Dec
Link Register	W	W	1 - 74096	R/W	(*5)
Spec. Register	Z	Z	1 - 1024	R/W	Dec

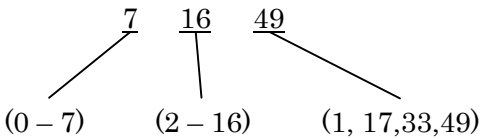
(*1) Please specify in the following ranges.



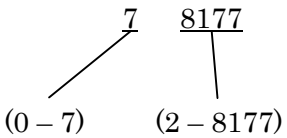
(*2) Please specify in the following ranges.



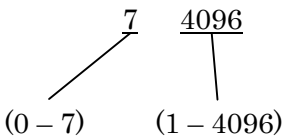
(*3) Please specify in the following ranges.



(*4) Please specify in the following ranges.



(*5) Please specify in the following ranges.



18 INVERTER

18.1 Connection Table

18.1.1 Compatible Mitsubishi Inverters

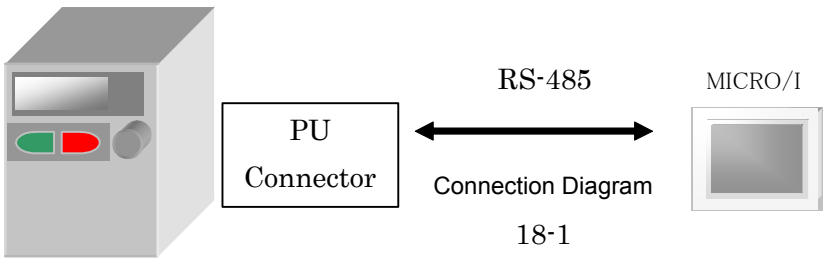
Manufacturer	Series Name	System	WindO/I-NV2 Setting Name		
			Interface	Flow Control	Host I/F Driver
Mitsubishi	FREQROL	FREQROL-E500 FREQROL-S500	RS-485 (422)-4 (Connection Diagram 18-1)	None	FREQROL

* We tested with the PLC of underline part.

18.2 System Configuration

The following is the system configuration for connecting a Mitsubishi inverter with the MICRO/I.

18.2.1 Mitsubishi



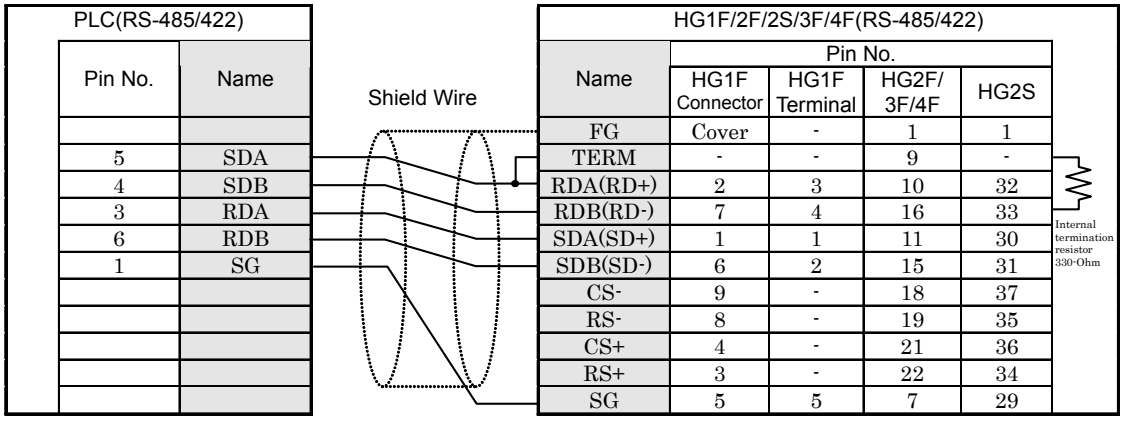
Connection Diagram 18-1

For details including the connection procedures, refer to the instruction manual provided with the Mitsubishi inverter.

18.3 Connection Diagram

The connector types given in the Connection Diagrams are for the unit and not the cable.

Connection diagram 18-1: Mitsubishi inverter PU connector to MICRO/I



PU Connector

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

- There is no pin No. corresponding to TERM on the HG1F/HG2S. When inserting a termination resistor, use a communication switch. For the setting of the switch, refer to "3 Important Points Regarding Wiring" in Chapter 1.

18.4 Environment Settings

The following shows the settings of the communication port for performing communications between the Mitsubishi inverter FREQROL series and MICRO/I.

18.4.1 Environment settings for connecting the device to a Mitsubishi inverter

Items		Details
Serial Interface	Use the same settings as for the MICRO/I.	RS-485 (4wire)
Inverter No.		01 – 31
Baud Rate (bps)		4800/9600/19200
Data Bits (bit)		7,8
Stop Bits (bit)		1 / 2
Parity		Odd / Even / None
Ignore Write Error		Enable/Disable (*)
Terminator		CR only
Communication check time interval		Set to a value other than “0”.

(*)When you check “Ignore Write Error.” MICRO/I don’t display “Host communication Error” even if the Inverter returns NAK Error response.

MICRO/I set the error code from the inverter to LSD 112

18.5 Usable Devices

- Word Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Parameter	P	P	0 - 999	R/W	
Parameter 37	P37	P	0 - 1	R/W	(*1) (*2)
Operation mode	OP	OP	0	R/W	
Output frequency	OF	OF	0	R	(*5)
Output current	OC	OC	0	R	
Output voltage	OV	OV	0	R	
Alarm description (1, 2)	E12	E12	0	R	
Alarm description (3, 4)	E34	E34	0	R	
Alarm description (5, 6)	E56	E56	0	R	
Alarm description (7, 8)	E78	E78	0	R	
Run command	RC	RC	0	R/W	(*4)
Inverter status monitor	ISM	ISM	0	R	
Set frequency read (RAM)	SFRR	SFRR	0	R	(*5)
Set frequency read (E2PROM)	SFRE	SFRE	0	R	(*5)
Set frequency write (RAM)	SFWR	SFWR	0	R/W	(*4) (*5)
Set frequency write (E2PROM)	SFWE	SFWE	0	R/W	(*4) (*5)
Inverter reset	IR	IR	0	R/W	(*4)
Alarm definition batch clear	EC	EC	0	R/W	(*4)
All parameter clear	PACL	PACL	0	R/W	(*4)
Link parameter expansion setting	LPES	LPES	0	R/W	(*3)
Second parameter changing	SPC	SPC	0	R/W	

(*1) Use this device for parameter 37.

(*2) This device is handled as a 32-bit device by combining addresses 0 and 1.

(*3) The Link parameter expansion setting may be changed from the MICRO/I for reading and writing parameters.

(*4) Only the write data becomes valid on this device. When used for display, the device always becomes “0”.

(*5) This Device is only availble for 4 digits data.

For details regarding parameters and write data, refer to the instruction manual provided with the Mitsubishi inverter

19 FUJI

19.1 Connection Table

19.1.1 Compatible PLCs

Manufacturer	Series Name	System (CPU unit)	Link Unit	WindO/I-NV2 Setting Name		
				Interface	Flow Control	Host I/F Driver
FUJI	FLEX-PC	NB1, NB2, NB3, NJ-CPU-E4, NJ-CPU-A8, NJ-CPU-B16, NS	Not required (Connects to CPU unit)	RS-232C (Connection Diagram 19-1)	None	FLEX-PC (CPU)
				RS-485 (Connection Diagram 19-2)		
		NB1, NB2, NB3	NB-RS1-AC/ DC	RS-232C (Connection Diagram 19-3)	None/ Hardware	FLEX-PC(LINK)
				RS-485 (Connection Diagram 19-4)		
		NJ-CPU-E4 NJ-CPU-A8 NJ-CPU-B16	NJ-RS2 NJ-RS4	RS-232C (Connection Diagram 19-3)		
				RS-485 (Connection Diagram 19-4)		
		NS	NS-RS1	RS-232C (Connection Diagram 19-3)		
				RS-485 (Connection Diagram 19-4)		

* We tested with the PLC of underline part.

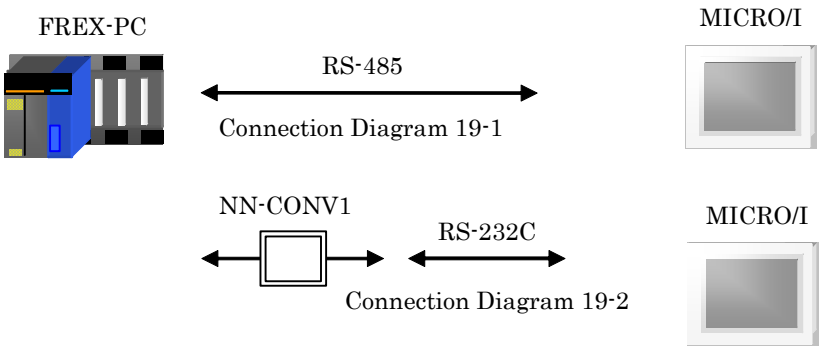
Manufacturer	Series Name	System (CPU unit)	Link Unit	WindO/I-NV2 Setting Name		
				Interface	Flow Control	Host I/F Driver
FUJI	MICREX-F	F55	NV1L-RS2	RS-232C (Connection Diagram 19-5)	None	MICREX-F
		F70	NC1L-RS2	RS-232C (Connection Diagram 19-5)		
			NC1L-RS4	RS-485 (Connection Diagram 19-6)		
		F80H, F120H, F120S, F140S, F150S	FFU120B	RS-232C (Connection Diagram 19-5)		
				RS-485 (Connection Diagram 19-6)		
		F30, F50, F50H F55, F60, F70 F70S, F80H, F81 F120H, F120S F140S, F150S F250	FFK120A-C10	RS-232C (Connection Diagram 19-5)		
				RS-485 (Connection Diagram 19-6)		

* We tested with the PLC of underline part.

19.2 System Configuration

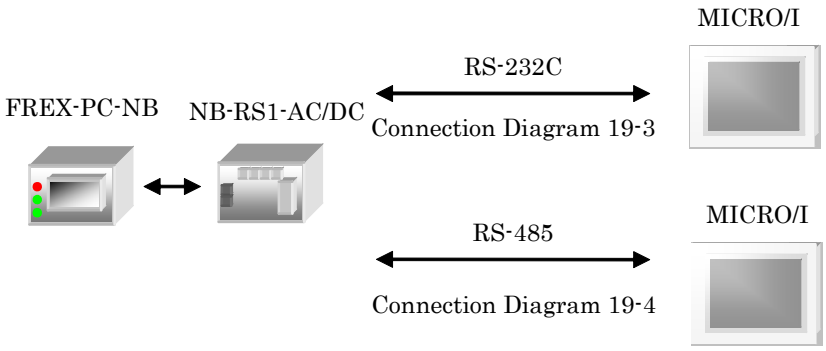
This is the system configuration for connection of FUJI PLCs to the MICRO/I.

19.2.1 FLEX-PC Series (Loader Port)

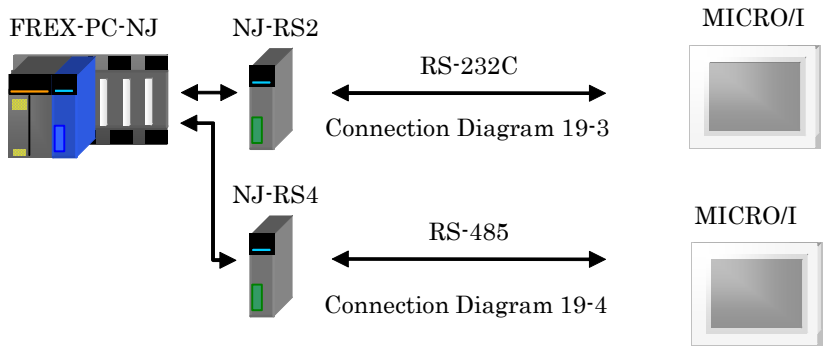


19.2.2 FLEX-PC Series (Interface Module)

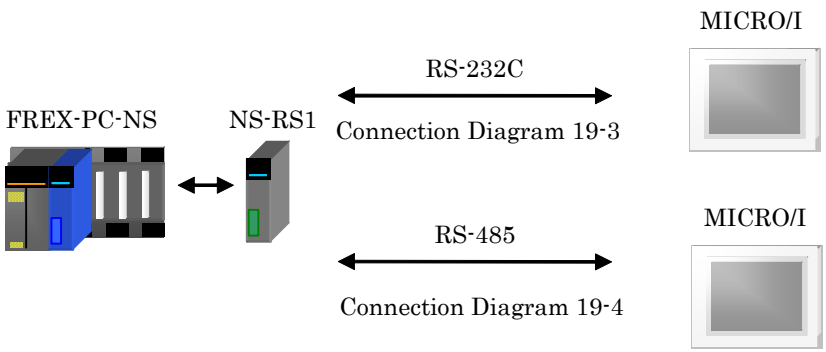
NB Series



NJ Series

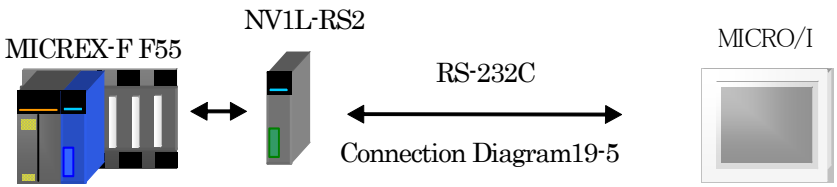


NS Series

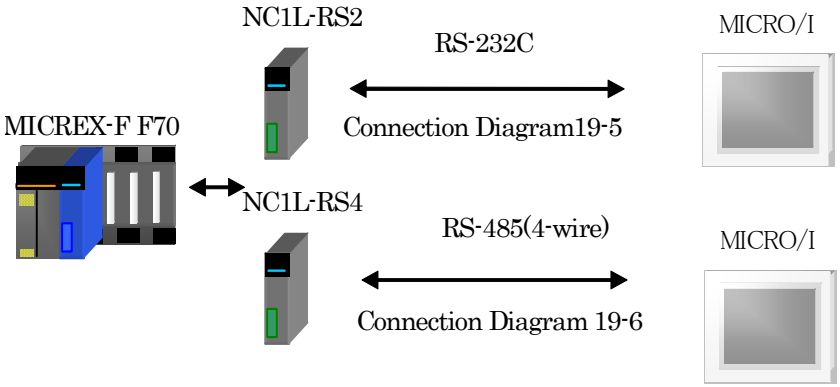


19.2.3 MICREX-F Series (Interface Card)

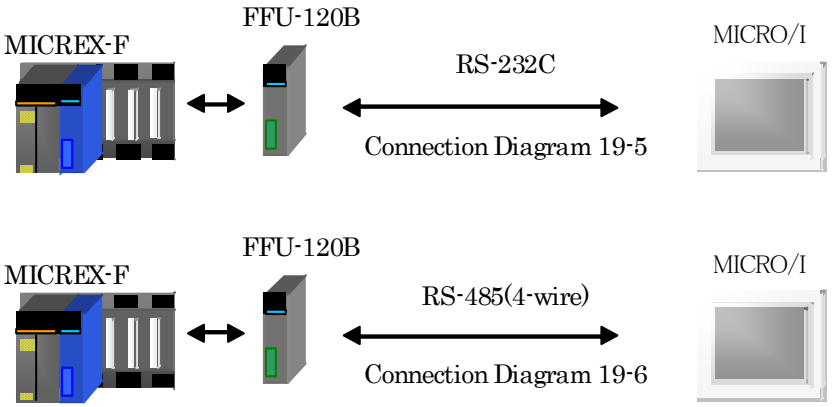
F55



F70

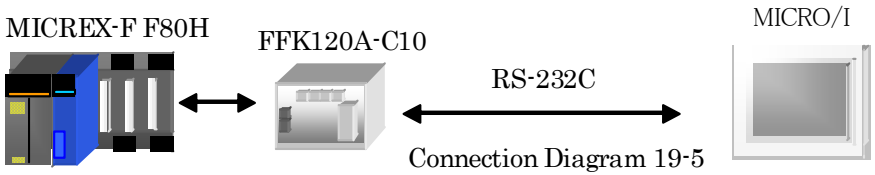


F80H/F120H/F120S/F140S/F150S

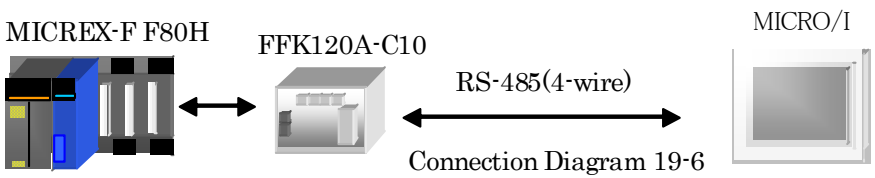


19.2.4 MICREX-F Series (Interface Module)

F30/F50/F50H/F55/F60/F70/F70S/F80H/F81/F120H/F120S/F140S/F150S



Connection Diagram 19-5



Connection Diagram 19-6

19.3 Connection Diagram

The connector types given in the Connection Diagrams are for the unit and not the cable. For details regarding wiring, refer to "3 Important Points Regarding About Wiring" in Chapter 1.

Connection Diagram 19-1:FLEX-PC series(Loader Port) - MICRO/I

PLC(RS-485/422)	
Pin No.	Name
-	-
3	SDA
4	SDB
5	RDA
6	RDB
8	SG

Shield Wire

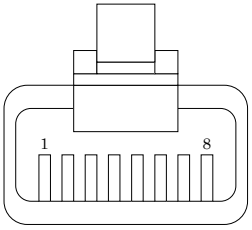
HG1F/2F/2S/3F/4F(RS-485/422)				
Name	Pin No.			
	HG1F Connector	HG1F Terminal	HG2F/ 3F/4F	HG2S
FG	Cover	-	1	1
TERM	-	-	9	-
RDA(RD+)	2	3	10	32
RDB(RD-)	7	4	16	33
SDA(SD+)	1	1	11	30
SDB(SD-)	6	2	15	31
CS-	9	-	18	37
RS-	8	-	19	35
CS+	4	-	21	36
RS+	3	-	22	34
SG	5	5	7	29

Internal termination resistor 330-Ohm

Modular jack 8 Pin

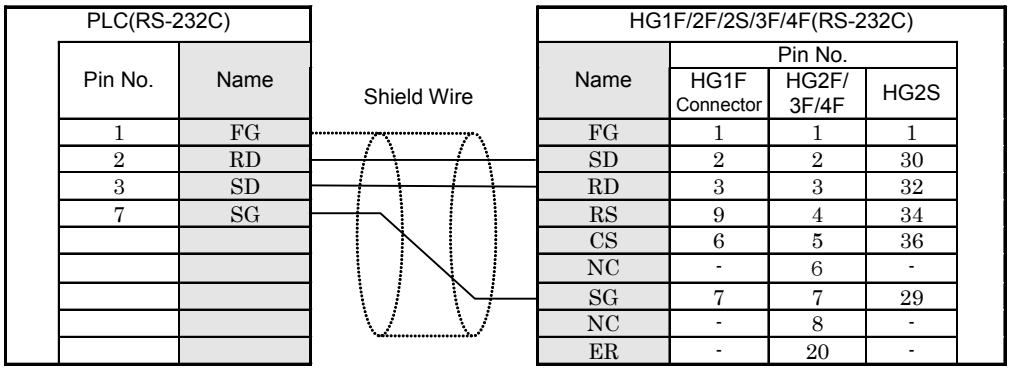
D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

Connector Pin Layout for PLC side Modular jack



- There is no pin No. corresponding to TERM on the HG1F/HG2S. When inserting a termination resistor, use a communication switch. For the setting of the switch, refer to "3 Important Points Regarding Wiring" in Chapter 1.

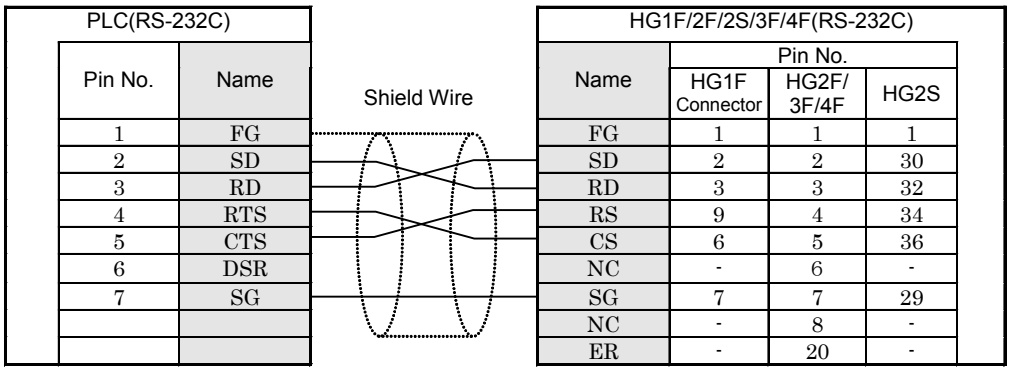
Connection Diagram 19-2: FLEX-PC series(Loader Port) + NN-CONV1 - MICRO/I



D-sub, 25P connector plug type

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

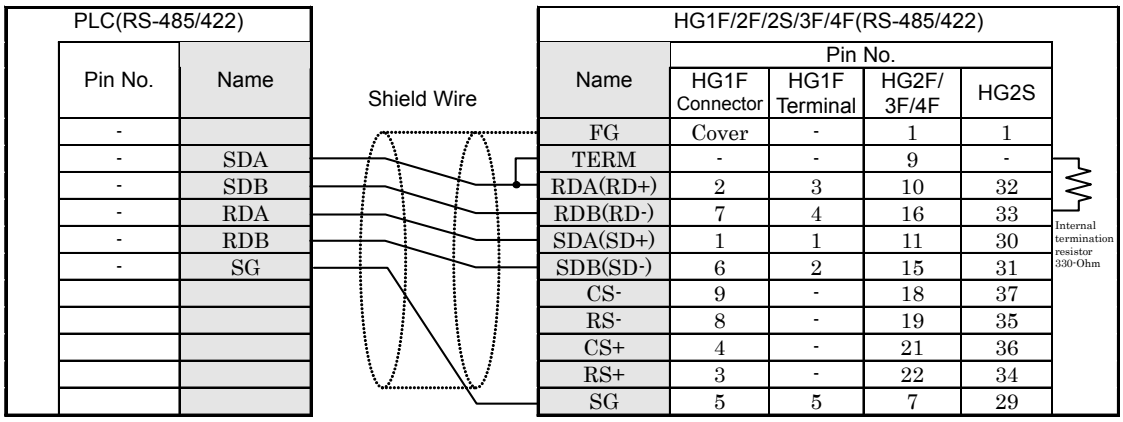
Connection Diagram 19-3：FLEX-PC Series（Link Module RS-232C Port）-MICRO/I



D-sub, 25P connector socket type

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

Connection Diagram 19-4：FLEX-PC Series（Link Module RS-458 Port）-MICRO/I

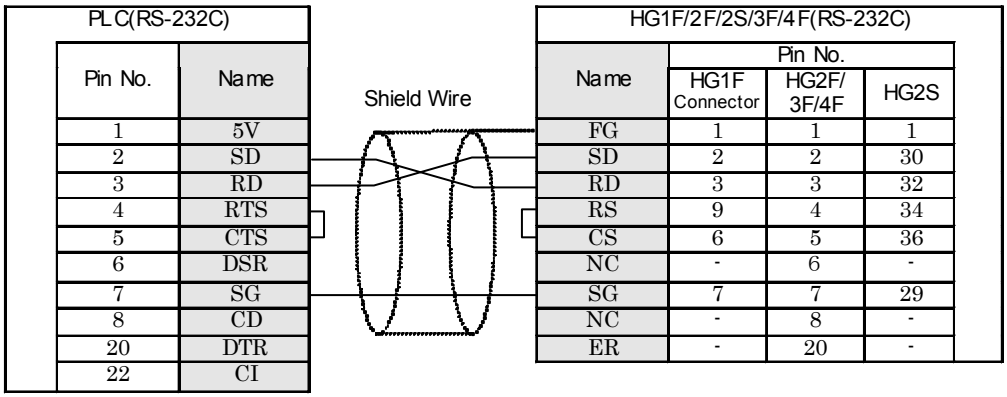


Screw terminal block

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

- There is no pin No. corresponding to TERM on the HG1F/HG2S. When inserting a termination resistor, use a communication switch. For the setting of the switch, refer to "3 Important Points Regarding Wiring" in Chapter 1.

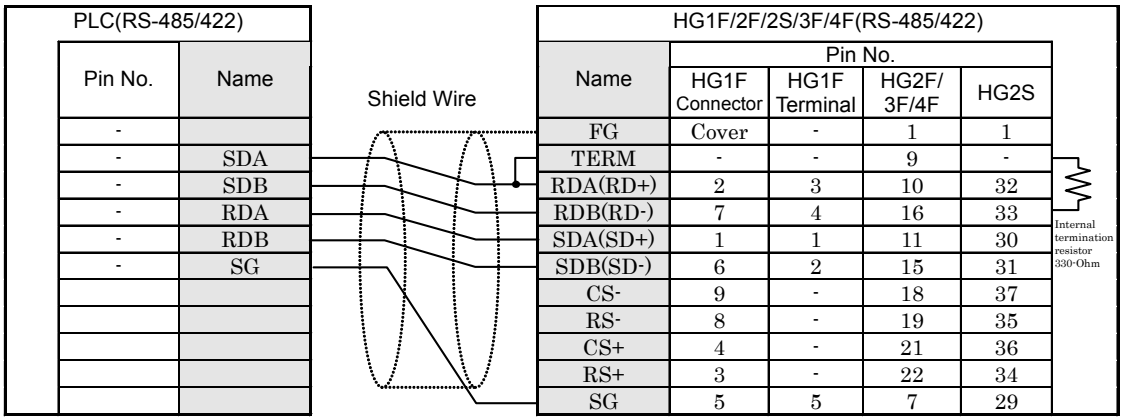
Connection Diagram 19-5 : MICREX-F Series (RS232C Port) -MICRO/I



D-sub, 25P connector socket type

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

Connection Diagram 19-6：MICREX-F Series（RS-458 Port）- MICRO/I



Screw terminal block

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

- There is no pin No. corresponding to TERM on the HG1F/HG2S. When inserting a termination resistor, use a communication switch. For the setting of the switch, refer to "3 Important Points Regarding Wiring" in Chapter 1.

19.4 Environment Settings

19.4.1 FUJI FLEX-PC (CPU)

19.4.1 FUJI FLEX-PC (CPU) to MICRO/I Setting

Items		Details	
Serial Interface		RS-232C	RS-485 (4wire)
Baud Rate (bps)	Use the same settings as for the MICRO/I.	19200	
Data Bits (bit)		8	
Stop Bits (bit)		1	
Parity		Odd	
Flow Control		None	

19.4.2 FUJI FLEX-PC (Link)

19.4.1 FUJI FLEX-PC (Link Module) to MICRO/I Setting

Items		Details	
Serial Interface		RS-232C	RS-485 (4wire)
Operation Modes (*1)		Command-setting-type start –stop synchronization non sequenced format	
Baud Rate (bps)	Use the same settings as for the MICRO/I.	1200/2400/4800/9600/19200	
Data Bits (bit)		7/8	
Stop Bits (bit)		1/2	
Parity		None/Odd/Even	
Flow Control		None/Hardware	
Station Number		–	0 – 99(DEC)

Refer to the FLEX-PC user's manual for the details of communication setting.

(*1) Set up the mode switch of Interface Module as below.
RS-232C Mode switch is No.1.
RS-485 Mode switch is No.3.

FLEX-PC Communication Setting

When you would like to set up the communication setting with the initialization file, refer to the following setup.

Set up item of 4, 5, 6, and 7 as well as MICRO/I settings.

No.	Item	0	1	2	3	4	5	6	7
1	Transmission type	Nonsequenced format							
2	Mode		Setting						
3	Received Message No.	0							
4	Baud rate			1200	2400	4800	9600	19200	
5	Data bit size	7	8						
6	Parity bit	None	Odd	Even					
7	Stop bit size	1		2					
8	DCE/DTE mode		DTE						
9	CTS/RTS control		Constantly ON						
10	DSR/DTR control	Constantly ON							
11	Transmission conditions			None					
13	Transmission code	JIS							
14	Code conversion		Yes						
15	Received data byte size	0							
16	Start code		STX						
17	End code			CR					
18	Start code 1,2	0							
19	End code 1,2	0							
20	BCC		Setting 1						
21	Position (range)	TEXT							
22	Calculation formula			EOR					
23	Code	Trans-mission code							
24	Timer								

21.4.3 FUJI MICREX-F Interface Card/Module

Items		Details	
Serial Interface		RS-232C	RS-485 (4wire)
Operation Modes (*1)		Command-setting-type start –stop synchronization non sequenced format	
Baud Rate (bps)	Use the same settings as for the MICRO/I.	1200/2400/4800/9600/19200/38400/57600/115200	
Data Bits (bit)		7/8(*2)	
Stop Bits (bit)		1/2(*2)	
Parity		None/Odd/Even(*2)	
Flow Control		None/Hardware	
Station Number		0	0 – 99(DEC)

(*1) Set up the mode switch of Interface Module as below.
RS-232C Mode switch is No.1.
RS-485 Mode switch is No.3.

(*2) Set Character configuration switch to the following

Switch Number		Configuration
8	Initialize method	By switch
7	Parity bit ON/OFF	Same as MICRO/I
6	Parity bit Odd/Even	Same as MICRO/I
5	Data bit	Same as MICRO/I
4	Stop bit	Same as MICRO/I

Refer to the MICREX-F user's manual for the details of communication setting

19.5 Usable Devices

19.5.1 FREX-PC

・ Bit Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Int. Relay(bit)	M	M	0 – 3FF	R/W	Hex
Input Relay (bit)	X	X	0 – 7FF	R	Hex
Output Relay (bit)	Y	Y	0 – 7FF	R/W	Hex
Exp. Int. Relay(bit)	EM	M	400 – 1FFF	R/W	Hex
Latch Relay (bit)	L	L	0 – 3FF	R/W	Hex
Exp. Latch Relay (bit)	EL	L	400 – 1FFF	R/W	Hex
Step Relay (bit)	S	S	0 – 3FF	R/W	Hex
Spec. Relay(bit)	SM	SM	8000 – 81FF	R/W	Hex
Timer (Relay)	T	T	0 – 3FF	R	Hex
Counter (Relay)	C	C	0 – 1FF	R	Hex

・ Word Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Data Register	D	D	0 – 2FFF	R/W	Hex
Input Relay (word)	WX	X	0 – 7F	R	Hex
Output Relay (word)	WY	Y	0 – 7F	R/W	Hex
Int. Relay(word)	WM	M	0 – 3F	R/W	Hex
Exp. Int. Relay(word)	WEM	M	40 – 1FF	R/W	Hex
Latch Relay (word)	WL	L	0 – 3F	R/W	Hex
Exp. Latch Relay (word)	WEL	L	40 – 1FF	R/W	Hex
Step Relay (word)	WS	S	0 – 3F	R/W	Hex
Spec. Relay(word)	WSM	M	800 – 81F	R/W	Hex
Timer (Current Value)	TN	T	0 – 3FF	R	Hex
Counter (Current Value)	CN	C	0 – 1FF	R	Hex
Spec. Register	SD	D	8000 – 837F	R/W	Hex
Link Register	W	W	0 – 3FFF	R/W	Hex
File Register	R	R	0 – 7FFF	R/W	Hex

19.5.2 MICREX-F

· Bit Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
In.Output Relay(bit)	B	B	0-511F	R/W	Hex
Int.Relay(bit)	M	M	0-511F	R/W	Hex
Keep Relay(bit)	K	K	0-63F	R/W	Hex
Edge Relay(bit)	D	D	0-63F	R/W	Hex
Spec.Relay(bit)	F	F	0-125F	R	Hex
Link Relay(bit)	L	L	0-511F	R/W	Hex
Ann.Relay(bit)	A	A	0-45F	R/W	Hex

· Word Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
InOut Relay(word)	WB	WB	0-511	R/W	Dec
Di.InOut Relay(word)	W24	W24	0-159	R/W	Dec
Int.Relay(word)	WM	WM	0-511	R/W	Dec
Keep Relay(word)	WK	WK	0-63	R/W	Dec
Edge Relay(word)	WD	WD	0-63	R/W	Dec
Link Relay(word)	WL	WL	0-511	R/W	Dec
Spec.Relay(word)	WF	WF	0-125	R	Dec
Ann.Relay(word)	WA	WA	0-45	R/W	Dec
FileMemo.0(word)	W30	W30	0-4095	R/W	Dec
FileMemo.1(word)	W31	W31	0-4095	R/W	Dec
FileMemo.2(word)	W32	W32	0-4095	R/W	Dec
FileMemo.3(word)	W33	W33	0-4095	R/W	Dec
FileMemo.4(word)	W34	W34	0-4095	R/W	Dec
FileMemo.5(word)	W35	W35	0-4095	R/W	Dec
FileMemo.6(word)	W36	W36	0-4095	R/W	Dec
FileMemo.7(word)	W37	W37	0-4095	R/W	Dec
DataMemo(16bit)	BD	WBD	0-4095	R/W	Dec
DataMemo(32bit)	BD	BD	0-4095	R/W	Dec
Timer0.01S(Curr.Value)	TR	TR	0-511	R/W	Dec
Timer0.1S(Curr.Value)	W9	W9	0-511	R/W	Dec
Timer0.01S(Set.Value)	TS	TS	0-511	R/W	Dec
Counter(Curr.Value)	CR	CR	0-255	R/W	Dec
Counter(Set.Value)	CS	CS	0-255	R/W	Dec
FileMemo.0(32bit)	W30	DW30	0-4095	R/W	Dec
FileMemo.1(32bit)	W31	DW31	0-4095	R/W	Dec
FileMemo.2(32bit)	W32	DW32	0-4095	R/W	Dec
FileMemo.3(32bit)	W33	DW33	0-4095	R/W	Dec
FileMemo.4(32bit)	W34	DW34	0-4095	R/W	Dec
FileMemo.5(32bit)	W35	DW35	0-4095	R/W	Dec
FileMemo.6(32bit)	W36	DW36	0-4095	R/W	Dec
FileMemo.7(32bit)	W37	DW37	0-4095	R/W	Dec

20 Toshiba

20.1 Connection Table

20.1.1 Compatible PLCs

Manufacturer	Series Name	System (CPU unit)		Link Unit	WindO/I-NV2 Setting Name		
					Interface	Flow Control	Host I/F Driver
Toshiba	PROSEC T	T1	T1-16 T1-28 T1-40	Not required(Connects to CPU unit)	RS-232C	None/ Hardware	PROSEC T
				CU111	RS-485		
		T1S	T1-40S	Not required(Connects to CPU unit)	RS-232C		
					RS-485		
				CU111	RS-485		
		T2	PU224	Not required(Connects to CPU unit)	RS-485		
		T2E	PU234E	Not required(Connects to CPU unit)	RS-232C		
				CM231E	RS-485		
				CM232E	RS-232C		
		T2N	PU215N PU235N PU245N	Not required(Connects to CPU unit)	RS-232C		
					RS-485/ RS-232C		
		T3 T3H	PU315 PU325 PU325H PU326H	Not required(Connects to CPU unit)	RS-485		

* We tested with the PLC of underline part.

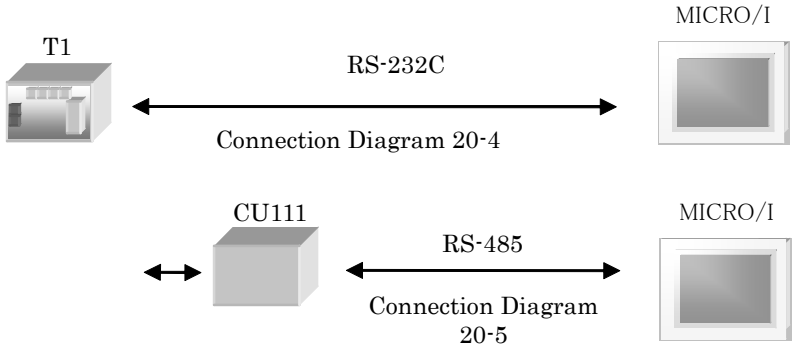
Manufacturer	Series Name	System (CPU unit)		Link Unit	WindO/I-NV2 Setting Name		
					Interface	Flow Control	Host I/F Driver
Toshiba	V	S2T S2E L1 S2 S3	PU672T PU662T PU612E L1PU11H L1PU12H S2PU82 S2PU72 S2PU32 S2PU22 S3PU65 S3PU55 S3PU45 S3PU21	Not required(Connects to CPU unit)	RS-485	None/ Hardware	PROSEC T

* We tested with the PLC of underline part.

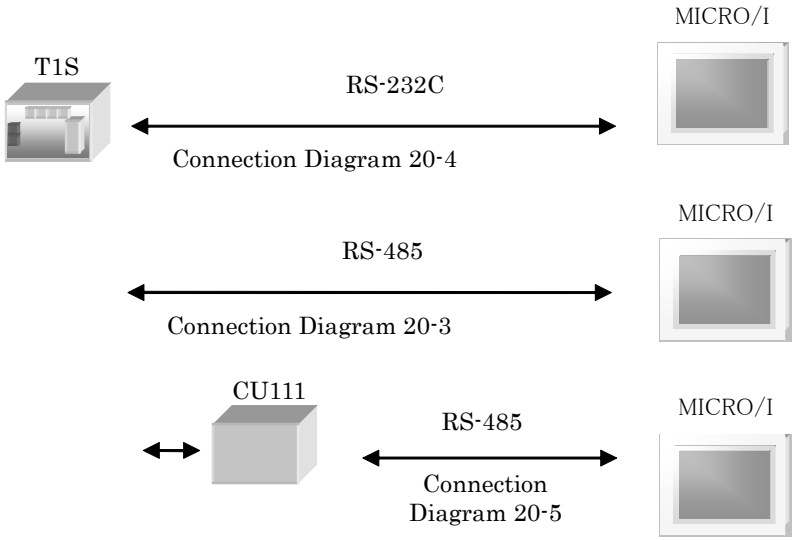
20.2 System Configuration

This is the system configuration for connection of Toshiba PLCs to the MICRO/I.

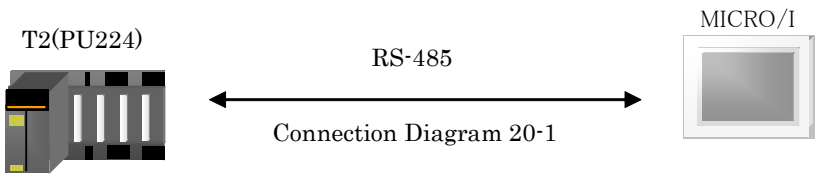
20.2.1 PROSEC T Series T1



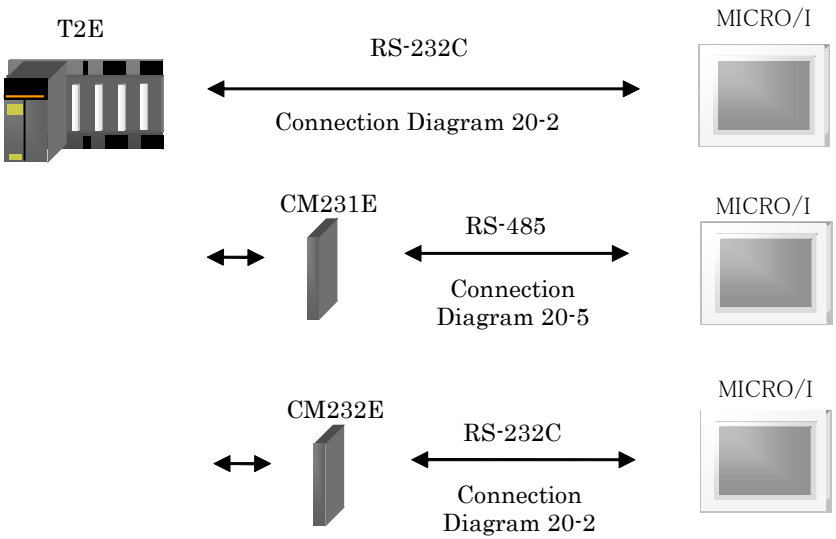
20.2.2 PROSEC T Series T1S



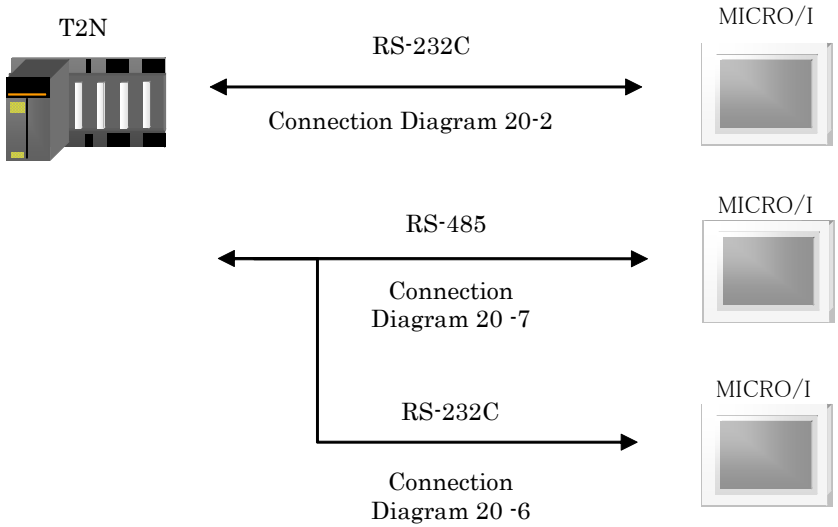
20.2.3 PROSEC T Series T2 (PU224)



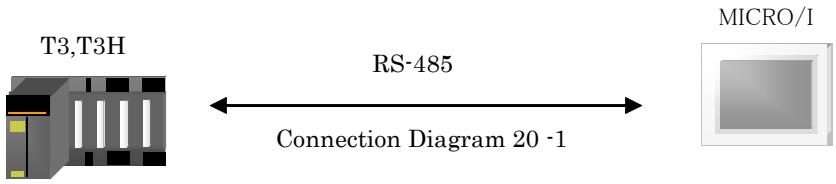
20.2.4 PROSEC T Series T2E



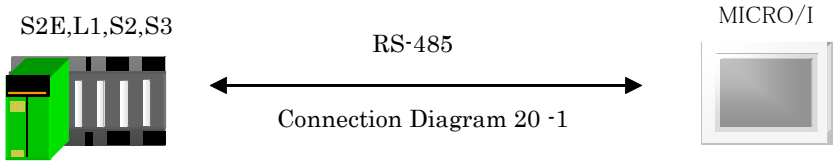
20.2.5 PROSEC T Series T2N



20.2.6 PROSEC T Series T3, T3H



20.2.7 V Series S2T, S2E, L1, S2, S3



20.3 Connection Diagram

The connector types given in the Connection Diagrams are for the unit and not the cable. For details regarding wiring, refer to "3 Important Points Regarding About Wiring" in Chapter 1.

Connection Diagram 20-1: RS-485 D-sub 15P ― MICRO/I

PLC(RS-485/422)	
Pin No.	Name
1	FG
2	RXA
3	TXA
4	CTSA
5	RTSA
7	SG
10	RXB
11	TXB
12	CTSB
13	RTSB

Shield Wire

HG1F/2F/2S/3F/4F(RS-485/422)				
Name	Pin No.			
	HG1F Connector	HG1F Terminal	HG2F/ 3F/4F	HG2S
FG	Cover	-	1	1
TERM	-	-	9	-
RDA(RD+)	2	3	10	32
RDB(RD-)	7	4	16	33
SDA(SD+)	1	1	11	30
SDB(SD-)	6	2	15	31
CS-	9	-	18	37
RS-	8	-	19	35
CS+	4	-	21	36
RS+	3	-	22	34
SG	5	5	7	29

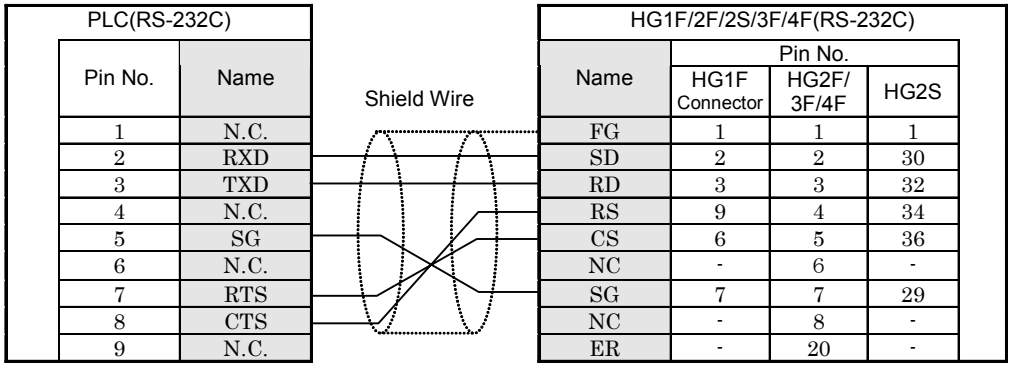
Internal termination resistor 330-Ohm

D-sub, 15P connector socket type

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

- There is no pin No. corresponding to TERM on the HG1F/HG2S. When inserting a termination resistor, use a communication switch. For the setting of the switch, refer to "3 Important Points Regarding Wiring" in Chapter 1.

Connection Diagram 20-2: RS-232 D-sub 9P ― MICRO/I

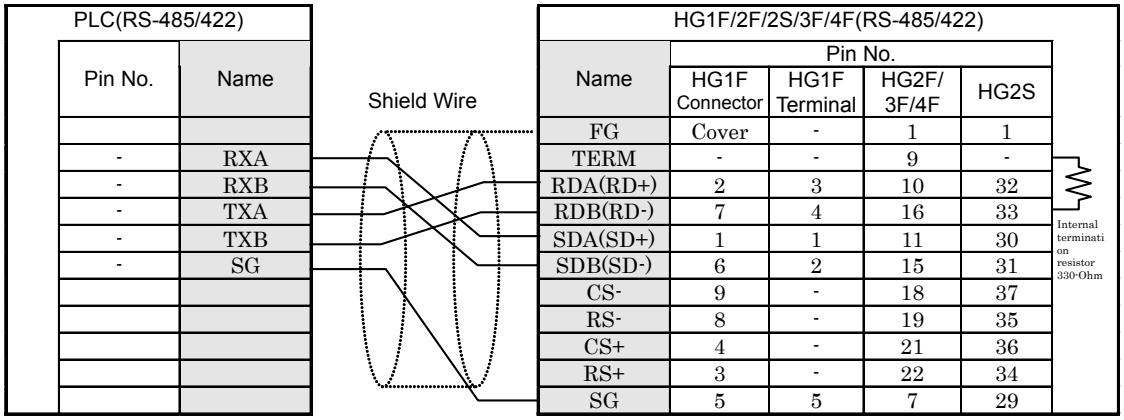


D-sub, 9P connector socket type

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

Chap.2

Connection Diagram 20-3 : T1S RS-485 Terminal Block ― MICRO/I

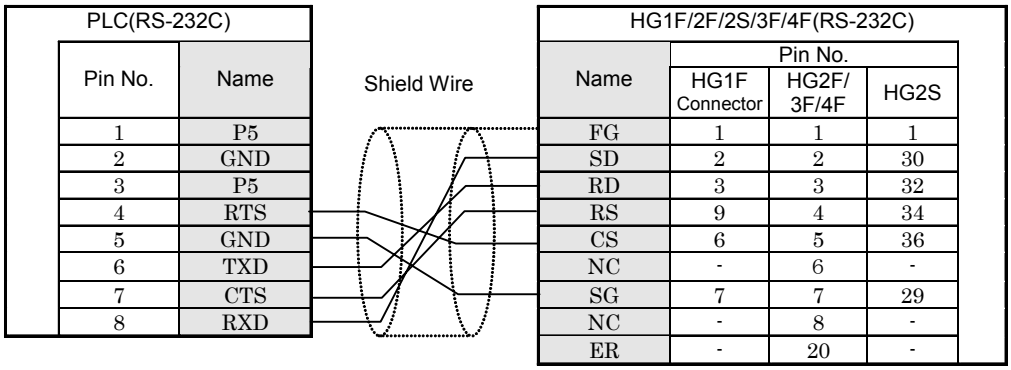


Terminal Block

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

- There is no pin No. corresponding to TERM on the HG1F/HG2S. When inserting a termination resistor, use a communication switch. For the setting of the switch, refer to "3 Important Points Regarding Wiring" in Chapter 1.

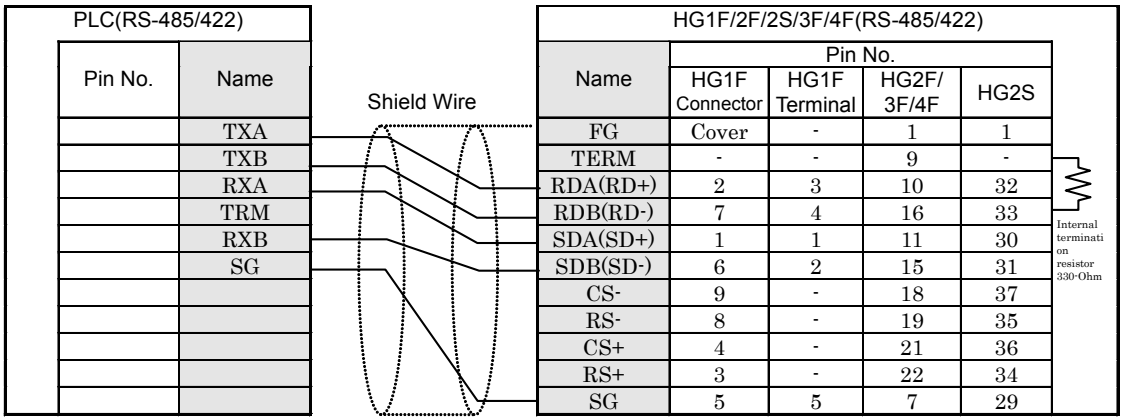
Connection Diagram 20-4 : T1,T1S RS-232C Din connector 8P ― MICRO/I



Din connector 8P socket type

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

Connection Diagram 20-5 : RS-485 Terminal Block― MICRO/I

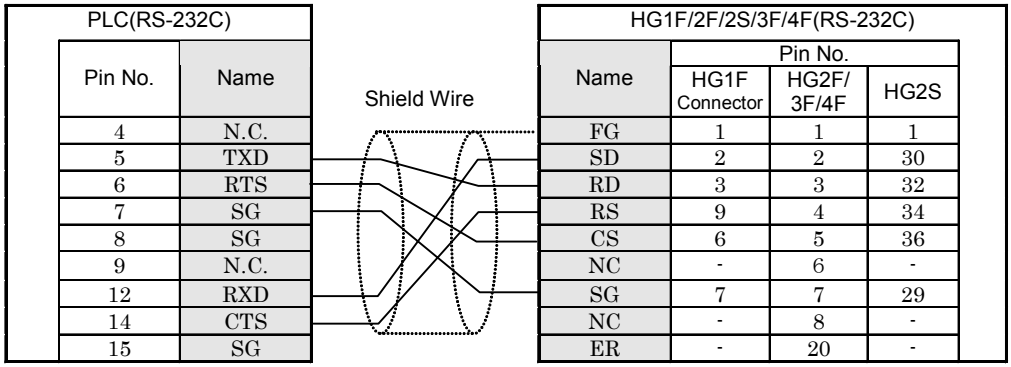


Terminal Block

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

- There is no pin No. corresponding to TERM on the HG1F/HG2S. When inserting a termination resistor, use a communication switch. For the setting of the switch, refer to "3 Important Points Regarding Wiring" in Chapter 1.

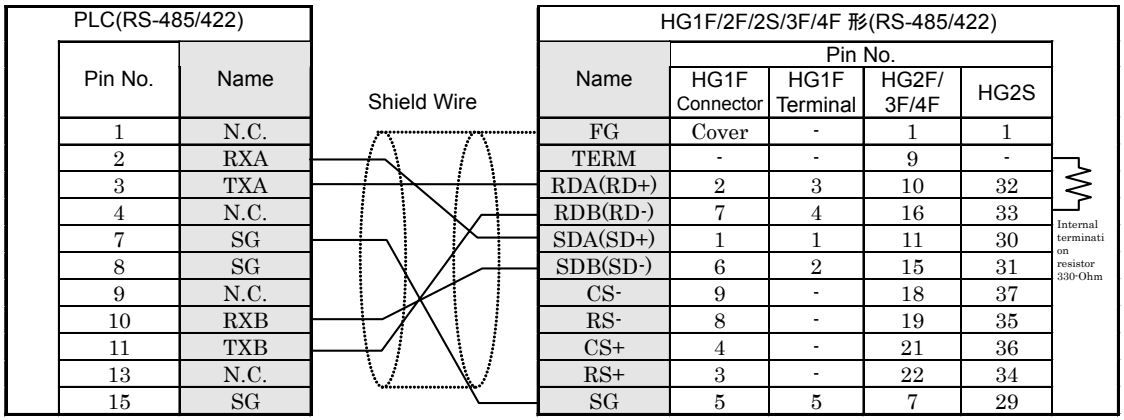
Connection Diagram 20-6 : T2N RS-232C D-sub 15Pin connector(RS232C/RS485) — MICRO/I



D-sub, 15P connector socket type

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

Connection Diagram 20-7 : T2N RS-485 D-sub 15Pin connector(RS232C/RS485) — MICRO/I



D-sub, 15P connector socket type

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

- There is no pin No. corresponding to TERM on the HG1F/HG2S. When inserting a termination resistor, use a communication switch. For the setting of the switch, refer to "3 Important Points Regarding Wiring" in Chapter 1.

20.4 Environment Settings

Refer to the followings to configure the communication port between PLC (PROSEC T Series or V Series) and MICRO/I.
Attend to the limitation of the configuration. It depends on the CPU unit and Link unit.

20.4.1 Toshiba PROSEC T Series, V Series

Items	Details	
Interface	RS-232C	RS-485(4wire/2wire)
Slave Number	01- 32(DEC)	
Baud Rate [bps]	1200, 2400, 4800, 9600, 19200, 38400, 57600 115200	
Data Bits [bit]	7,8	
Parity	None/Odd/Even	
Stop Bits [bit]	1, 2	
Flow Control	None/Hardware	

Refer to the PROSC T Series and V Series user's manual for the details of communication setting.

20.5 Usable Devices

・Bit Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Input device	X	X	0 - 8191F	R	(*1)
Output device	Y	Y	0 - 8191F	R/W	(*1)
Auxiliary device	R	R	0 - 4095F	R/W	(*1)
Special device	S	S	0 - 511F	R/W	(*1)
Timer device	TS	T.	0 - 999	R	DEC
Counter device	CS	C.	0 - 511	R	DEC
Link device	Z	Z	0 - 999F	R/W	(*1)
Link relay	L	L	0 - 255F	R/W	(*1)

(*1) Set the first digit to HEX and another digit to DEC.

・Word Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
Input register	XW	XW	0 - 8191	R	DEC
Output register	YW	YW	0 - 8191	R/W	DEC
Auxiliary register	RW	RW	0 - 4095	R/W	DEC
Special register	SW	SW	0 - 511	R/W	DEC
Timer register	T	T	0 - 999	R	DEC
Counter register	C	C	0 - 511	R	DEC
Data register	D	D	0 - 8191	R/W	DEC
Link register	W	W	0 - 2047	R/W	DEC
Link relay register	LW	LW	0 - 255	R/W	DEC
File register	F	F	0 - 32767	R/W	DEC

20.6 The mapping table of devices between PROSEC T Series and V Series

When you use V Series PLCs, refer to the following table and replace a device name from PROSEC T Series to V Series.

V Series(S controller)			T Series(Computer Link)	
Variable name		Symbol	Device Name	Symbol
System register	Device	S	Special device	S
	Register	SW	Special register	SW
Data register	Device	D	Auxiliary device	R
	Register	DW	Auxiliary register Data register	RW D
I/O variable	Device	IX	Input device	X
		QX	Output device	Y
	Register	IW	Input register	XW
		QW	Output register	YW
User register	Register	Variable name	File register	F

V Series (S controller) has some variables to keep compatibility with PROSEC T Series. Computer Link protocol of V Series can communicate those variables with the symbol of T Series.
Refer to the PROSC T Series and V Series user's manual for the details of communication setting.

21 LS Industrial Systems

21.1 Connection Table

21.1.1 Compatible PLCs

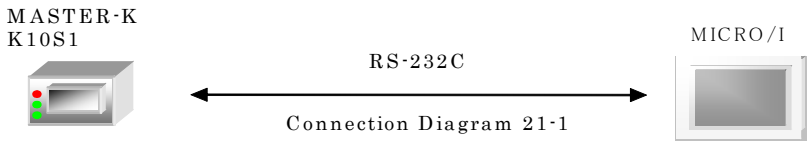
Manufacturer	Series Name	System (CPU unit)	Link Unit	WindO/I-NV2 Setting Name		
				Interface	Flow Control	Host I/F Driver
LS Industrial Systems	MASTER-K	K10S1	Not required(Connects to CPU unit)	RS-232C (Connection Diagram 21-1)	None	MASTER-K
		K80S, K120S, K200S,	Not required(Connects to CPU unit)	RS-232C (Connection Diagram 21-2)		
		K80S	G7L-CUEB	RS-232C (Connection Diagram 21-3)		
			G7L-CUEC	RS-232C (Connection Diagram 21-4)		
		K200S	G6L-CUEB	RS-232C (Connection Diagram 21-3)		
			G6L-CUEC	RS-232C (Connection Diagram 21-4)		
		K300S	G4L-CUEA	RS-232C (Connection Diagram 21-3)		
				RS-232C (Connection Diagram 21-4)		

* We tested with the PLC of underline part.

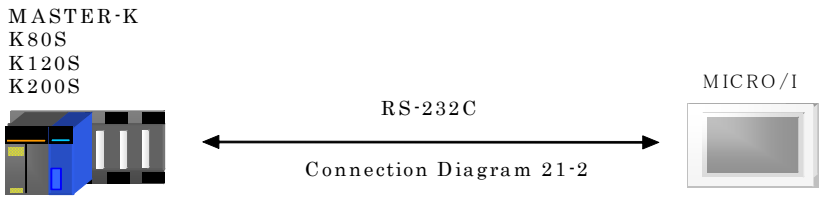
21.2 System Configuration

This is the system configuration for connection of LS Industrial Systems PLCs to the MICRO/I.

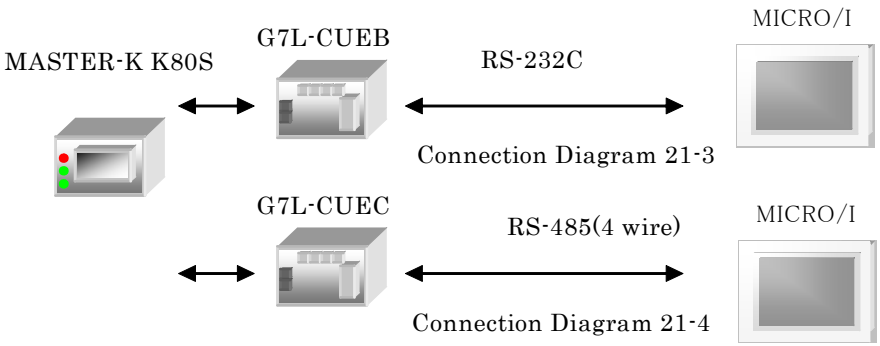
21.2.1 MASTER-K K10S1 (Loader Port)



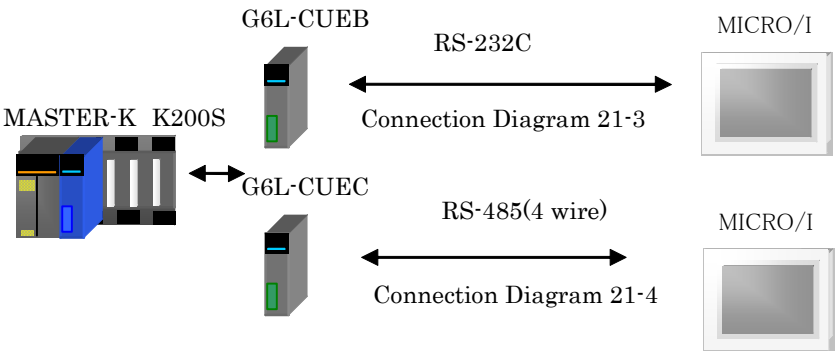
21.2.2 MASTER-K K80S, K120S, K200S (Loader Port)



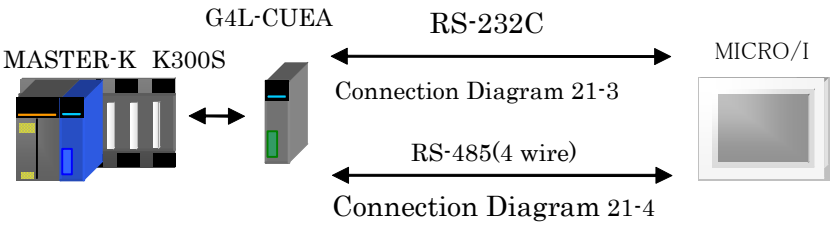
21.2.3 MASTER-K K80S (Interface Module)



21.2.4 MASTER-K K200S (Interface Module)



21.2.5 MASTER-K K300S (Interface Module)



21.3 Connection Diagram

The connector types given in the Connection Diagrams are for the unit and not the cable. For details regarding wiring, refer to "3 Important Points Regarding About Wiring" in Chapter 1.

Connection Diagram 21-1: MASTER-K K10S1 (Loader Port) ─ MICRO/I

PLC(RS-232C)	
Pin No.	Name
1	NC
2	RD
3	SD
4	NC
5	SG
6	NC

Mini Din 6Pin

Shield Wire

HG1F/2F/2S/3F/4F(RS-232C)			
Name	Pin No.		
	HG1F Connector	HG2F/ 3F/4F	HG2S
FG	1	1	1
SD	2	2	30
RD	3	3	32
RS	9	4	34
CS	6	5	36
NC	-	6	-
SG	7	7	29
NC	-	8	-
ER	-	20	-

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

Connection Diagram 21-2: MASTER-K K80S, 120S, 200S (Loader Port) ─ MICRO/I

PLC(RS-232C)	
Pin No.	Name
1	5V
2	RXD1
3	TXD1
4	RXD2
5	SG
6	5V
7	TXD2
8	SG
9	SG

D-sub, 25P connector plug type

Shield Wire

HG1F/2F/2S/3F/4F(RS-232C)			
Name	Pin No.		
	HG1F Connector	HG2F/ 3F/4F	HG2S
FG	1	1	1
SD	2	2	30
RD	3	3	32
RS	9	4	34
CS	6	5	36
NC	-	6	-
SG	7	7	29
NC	-	8	-
ER	-	20	-

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

Connection Diagram 21-3: MASTER-K (Interface Module RS232C Port) – MICRO/I

PLC(RS-232C)	
Pin No.	Name
1	CD
2	RXD
3	TXD
4	DTR
5	SG
6	DSR
7	RTS
8	CTS
9	RI

Shield Wire

HG1F/2F/2S/3F/4F(RS-232C)			
Name	Pin No.		
	HG1F Connector	HG2F/ 3F/4F	HG2S
FG	1	1	1
SD	2	2	30
RD	3	3	32
RS	9	4	34
CS	6	5	36
NC	-	6	-
SG	7	7	29
NC	-	8	-
ER	-	20	-

D-sub, 25P connector socket type

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

Connection Diagram 21-4 : MASTER-K (Interface Module RS-485 Port) – MICRO/I

PLC(RS-485/422)	
Pin No.	Name
-	FG
-	RDA
-	RDB
-	SDA
-	SDB
-	SG

Shield Wire

HG1F/2F/2S/3F/4F(RS-485/422)				
Name	Pin No.			
	HG1F Connector	HG1F Terminal	HG2F/ 3F/4F	HG2S
FG	Cover	-	1	1
TERM	-	-	9	-
RDA(RD+)	2	3	10	32
RDB(RD-)	7	4	16	33
SDA(SD+)	1	1	11	30
SDB(SD-)	6	2	15	31
CS-	9	-	18	37
RS-	8	-	19	35
CS+	4	-	21	36
RS+	3	-	22	34
SG	5	5	7	29

Internal termination resistor 330-Ohm

Terminal Block

D-sub, 9P connector socket type (HG1F)
D-sub, 25P connector socket type (HG2F/3F/4F)
D-sub, 37P connector plug type (HG2S)

- There is no pin No. corresponding to TERM on the HG1F/HG2S. When inserting a termination resistor, use a communication switch. For the setting of the switch, refer to "3 Important Points Regarding Wiring" in Chapter 1.

21.4 Environment Settings

Refer to the followings to configure the communication port between PLC (PROSEC T Series or V Series) and MICRO/I.
Attend to the limitation of the configuration. It depends on the CPU unit and Link unit.

21.4.1 LG Industrial Systems MASTER-K K10S1, K80S, K120S, K200S (Loader Port)

Items	Details
Interface	RS-232C
Baud Rate [bps]	38400
Data Bits [bit]	8
Parity	None
Stop Bits [bit]	1
Flow Control	None

21.4.1 LG Industrial Systems MASTER-K K80S, K200S, K300S (Interface Module)

Items	Details	
Interface	RS-232C	RS-485(4wire/2wire)
Baud Rate [bps]	1200, 2400, 4800, 9600, 19200, 38400	
Data Bits [bit]	7,8	
Parity	None/Odd/Even	
Stop Bits [bit]	1, 2	
Flow Control	None/Hardware	
Station No.	00 - 1F(HEX)	

Refer to the MASTER-K Series user's manual for details of communication settings.

21.5 Usable Devices

・Bit Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
I/O Relay(bit)	P	P	0 – 31F	R/W	HEX
Auxiliary Relay(bit)	M	M	0 – 191F	R/W	HEX
Keep Relay(bit)	K	K	0 – 31F	R/W	HEX
Link Relay(bit)	L	L	0 – 63F	R/W	HEX
Special Relay(bit)	F	F	0 – 63F	R	HEX
Timer(Contact)	TS	T	0 – 255	R/W	DEC
Counter(Contact)	CS	C	0 – 255	R/W	DEC

・Word Device

Device Name	Device Symbol		Address Range	Read /Write	Address Gradual
	HG	PLC			
I/O Relay(word)	WP	P	0 – 31	R/W	DEC
Auxiliary Relay(word)	WM	M	0 – 191	R/W	DEC
Keep Relay(word)	WK	K	0 – 31	R/W	DEC
Link Relay(word)	WL	L	0 – 63	R/W	DEC
Special Relay(word)	WF	F	0 – 63	R	DEC
Timer(Current Value)	T	T	0 – 255	R/W	DEC
Counter(Current Value)	C	C	0 – 255	R/W	DEC
Data Register	D	D	0 – 4999	R/W	DEC